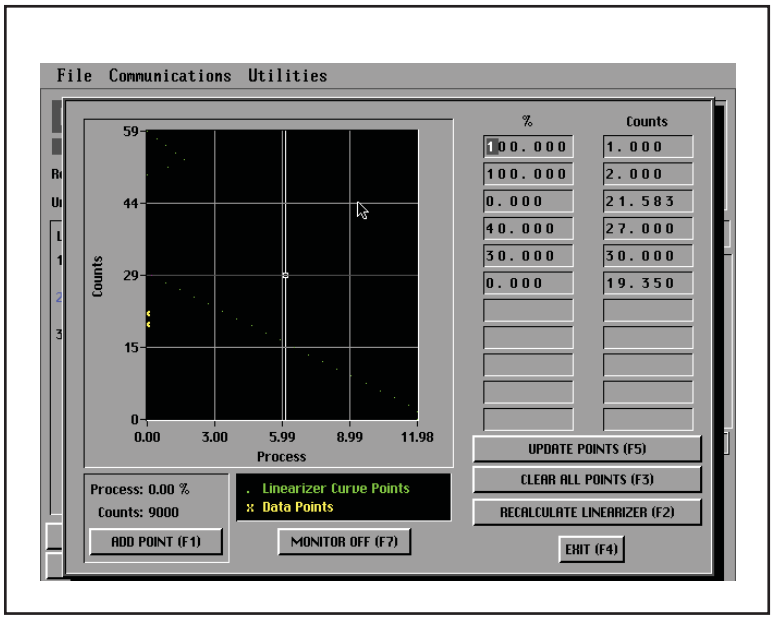
Technical Reference Manual

OHMART VIEW

HART® Communication Software for use with the OHMART Level and Density Transmitters



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Communication

Revision history

Table 1: Revision history

Version	Description	Date
1.0	Initial release. Formerly 237855.	051201
1.1	Corrected website address for Ohmart/VEGA Corrected copyright and registered marks	061211

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Overview

Software description

Ohmart View™ software communicates with Ohmart transmitter density and level gauges and provides a graphical user interface for initial setup, calibration, and diagnostics. The program also easily stores and downloads gauge configurations for backup and for multiple gauge setup.

Scope of this manual

This manual describes how to install and run the Ohmart View program. It does not give instruction to optimize the Ohmart transmitter gauge calibration and setup. Please refer to the gauge manual for gauge and application-specific information.

Table 2: Manuals for gauge and application specific information

Application	Gauge model	Manual title
Density Percent solids Cut detection Pipeline interface	DSTH	DSTH Density Measurement with HART® Communication Manual
Continuous level	LSTH LJTH LNTH	Level Transmitter with HART® Communication Manual
	FiberFlex® LFXG-H	FiberFlex® with HART Manual

If you need help

Contact Ohmart/VEGA Corporation Field Service for assistance:

- Voice (513) 272-0131
- FAX (513) 272-0133
- E-mail fieldservice@ohmartvega.com

System requirements

Ohmart View requires an IBM compatible personal computer with the following system requirements:

- Intel 486 33 MHz or greater recommended
- MS-DOS® version 6.0 or greater, or Windows® 3.1,Windows® 95, or Windows® 98 (does not run on Windows® NT or Windows® 2000)
- MS-DOS mouse driver installed (optional)
- 3.5" disk drive
- 1MB hard disk space as installed, plus 10KB for each new configuration file
- Ohmart HART® modem kit (Ohmart P/N 237857)

About HART communication

The HART protocol enables digital communication signals to carry on top of an analog milliamp current. The analog current, also known as the current loop, varies from 4–20mA. The transmitter gauge calibrates so that the current loop output corresponds to the process variable, usually density or level.

Ohmart View requires a HART modem to interface between the PC and the gauge. Typically, the modem has a female 9-pin RS-232 port on the PC side, two clip hooks on the gauge side. Make the gauge connection anywhere across the current loop. Test points H1 and H2 provide convenient locations at the gauge. A 250–1000 ohm load must exist on the current loop for proper communication.

Note
No load is required across H1 and H2.

The following figures illustrate two connection possibilities.

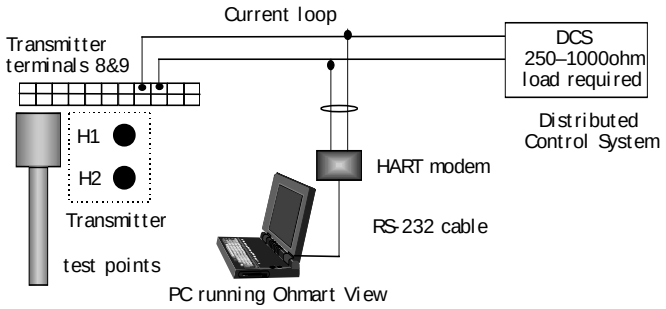

Figure 1: HART connection across DCS current loop

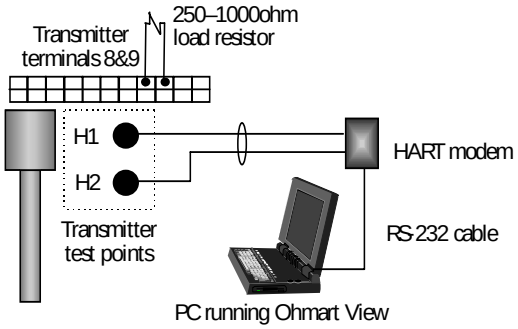

Figure 2: HART connection bench setup

HART equipment

You can buy HART communication equipment from Ohmart by calling the Parts and Repairs department at 513-272-0131, or through Ohmart representatives outside the U.S.

Table 3: Ohmart HART communication part description and numbers

Part description	Part number (P/N)
HART modem kit (includes all below)	237857
HART modem	236999
Ohmart View software	237856

When a transmitter is connected

An Ohmart HART transmitter contains on-board memory that stores the following information necessary for gauge operation:

- Configuration
- Calibration
- History
- Other information

When the Ohmart View software connects to a transmitter through the Connect function on the Communication menu, you can view all the information from the transmitter in the various HART screens.

Notes

Getting started

Operating system considerations

Ohmart View is a DOS application, due to the communication standards set by the HART protocol.

DOS users

Ohmart View design is for MS-DOS versions 6.0 or greater. It is easier to use a mouse with a DOS mouse driver but you can use keyboard commands for all functions and arrow keys for navigation.

Windows 3.1 users

Some communication problems may present themselves if you attempt to run the program from within Windows 3.1, depending on your computer's processor. Ohmart recommends running Ohmart View outside of the Windows 3.1 environment. Install a DOS mouse driver on your system to use a mouse with Ohmart View.

Windows 95 and Windows 98 users

Ohmart View runs well in Windows 95 and Windows 98 with a Pentium processor. Ohmart recommends that when using Windows 95 and Windows 98, launch the Ohmart View program from the task bar's **Start** button, **Run** command.

Installing the software

To install Ohmart View using DOS or Windows 3.1

Perform the following procedures to install Ohmart View using DOS or Windows 3.1:

Procedure 1: Install Ohmart View—MS-DOS or Windows 3.1

1. The software runs best outside the Windows shell. If you are running Windows 3.1, exit Windows from the Program Manager
2. Insert the Ohmart View diskette into the 3-1/2 in drive (referred to here as the A:\ drive)
3. At the DOS prompt, type **A:\INSTALL** and press ENTER
4. The Installation Path box opens. The default path that the program files copy into is **C:\OHMVIEW**
5. If you wish to have the installation program copy the files into another existing directory, enter the path name at the prompt
6. Click **OK** or press F4 to continue
7. When the installation program is complete, a message box, Installation Successful, opens. Click **OK** or press ENTER to continue.

To install Ohmart View using Windows 95 or Windows 98

Perform the following procedure to install Ohmart View using Windows 95 or Windows 98:

Procedure 2: Install Ohmart View—Windows 95 or Windows 98

1. Insert the Ohmart View diskette into the 3-1/2 in drive (referred to here as the A:\ drive)
2. On the taskbar, click the **Start** button, and then click **Run**
3. In the **Open** box, type **a:\install** and then click **OK**
4. The Installation Path box opens. The default path that the program files copy into is **c:\ohmview**

- If you want the installation program to copy the files into a different existing directory, enter the path name at the prompt
- Click **OK** or press F4 to continue

5. When the installation program is complete, a message box, Installation Successful, opens. Click **OK** or press ENTER to continue.

Installed files and subdirectories

The installation program installs the following files to the **C:\OHMVIEW** (or other chosen) directory:

Table 4: Installed files and subdirectories

File name	Description
C:\OHMVIEW directory	
ohmview.exe	Ohmart View executable program file
ohmview.den ohmview.lev ohmview.pmt ohmview.prf ohmview.uir	files used by the program
*.dta	data files
C:\OHMVIEW\CONFIG directory	
level.cfg	default configuration file for level applications
density.cfg	default configuration file for density applications

Starting Ohmart View

To run Ohmart View using DOS or Windows 3.1

Perform the following procedure to run Ohmart View using DOS or Windows 3.1:

Procedure 3: Start Ohmart View—MS-DOS or Windows 3.1

1. Verify that the PC is not running Windows. If necessary, exit Windows through the Program Manager
2. Make the **c:\ohmview** directory the current directory. Type **cd c:\ohmview** at the DOS prompt and press ENTER
3. At the **c:\ohmview** prompt, type **ohmview** and press ENTER. The Ohmart View program starts.

To run Ohmart View using Windows 95 or Windows 98

To run Ohmart View using Windows 95 or Windows 98, perform the following procedure:

Procedure 4: Start Ohmart View—Windows 95 or 98

1. On the taskbar, click the **Start** button, and then click **Run**
2. In the Open box, type **c:\ohmview\ohmview.exe** and then click **OK**
3. The Ohmart View program starts. This program is full-screen and cannot be minimized.

Exiting Ohmart View

To exit Ohmart view, perform the following procedure:

Procedure 5: Exit Ohmart View

1. In the Ohmart View program menu, click on **File**
2. From the **File** menu, select **Exit**
3. The Ohmart View program quits.

Choosing a language

You can display Ohmart View menus and screens in one of the following languages:

- English
- Spanish

The configuration files and data files always write in English.

Perform the following procedure to change the display language:

Procedure 6: Choose a language

1. From the **Utilities** menu, select **Languages**
2. The Language Choice box opens. Select **English** or **Spanish**
3. Click **Enter** or press F4. The displays update to the chosen language.

The Ohmart View interface

The Ohmart View software interface consists of the following parts:

Program Menu—Use this menu to upload and download data, connect to HART instruments, and exit the program.

Unit Tag Indicator—Use this indicator to display the tag number of the connected transmitter. If the software is in test mode, it displays Test Lev or Test Den.

Relay Status Indicator—Use this indicator to display the status of the relay, either energized (on) or de-energized (off). It functions when the monitor has been started.

HART Screens Window—Use this window to display the menus of functions. It emulates a HART Communicator.

Function Buttons—Use these buttons to perform functions within the HART screens. Their functionality changes depending on the currently displayed screen. Each screen displays the button's function directly on top of the button. A mouse or the keyboard can make the buttons active.

Navigation Buttons—Use these buttons to move within and through the HART screens. A mouse or the keyboard can make the buttons active.

Digital Indicators—Use these indicators to display a digital indication of the process value and the current loop milliamp output. It functions when the monitor starts.

Quick Connect/Disconnect—Use these buttons to provide a single mouse click method to establish communications with the gauge or to disconnect Ohmart View from the gauge.

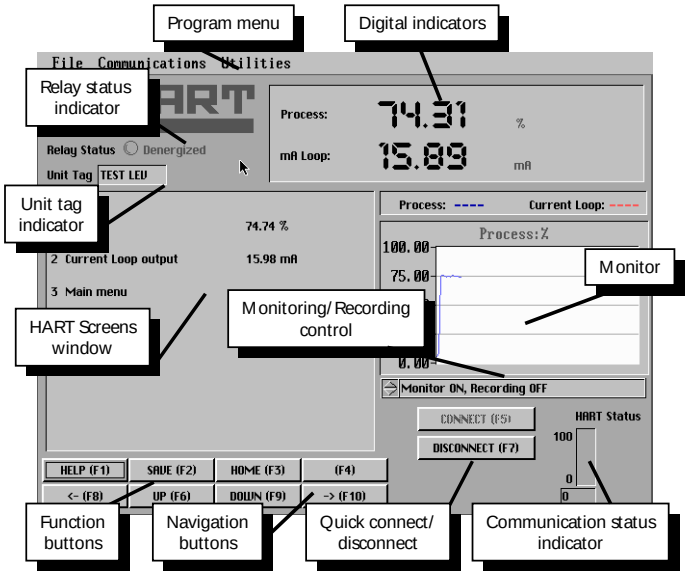

Figure 3: Ohmart View user interface

Monitor—Use this function to display an analog indication of the process value vs. time and the 4–20mA output vs. time. The monitor is operational only when the Monitor/Recording Control is used to turn it on.

Monitoring/Recording Control— Use these controls to start and stop the monitor analog display and digital indicators.

Use the Recording function to enable the process value and current loop output to write to a data (*.dta) file. If you turn on recording, a dialog box opens, prompting you to name the data file. You can record data to a file with one of three sample frequencies:

- Every sample
- One sample/minute
- One sample/hour

The frequency at which the data records does not affect the transmitter measurement frequency. Options for the monitoring/recording control are:

- Monitor OFF, Recording OFF
- Monitor ON, Recording OFF
- Monitor ON, Record every sample
- Monitor ON, Record one sample per minute
- Monitor ON, Record one sample per hour

Operation of the interface

Accessing the Program Menu

To access the Program Menu functions, simply click on the menu with the mouse pointer.

If you did not install an MS-DOS mouse driver, use the following keyboard equivalents to access the Program menus:

Table 5: Program menu functions and keyboard equivalents

Key	Function
ALT+F	File menu
ALT+C	Communications menu
UP ARROW, DOWN ARROW	moves up or down within Program Menu items
ENTER	selects menu item

Navigation of the display buttons

Perform the following procedure to activate the display buttons:

Procedure 7: Activate functions

1. Click on any of the buttons with the mouse pointer to activate the button
2. If you did not install DOS mouse, press TAB repeatedly to cycle through all the display buttons

3. When the desired button is highlighted with a box, press the SPACE BAR or ENTER to activate the function.

Navigation within the HART Screens Window

Use the buttons below the HART Screens Window to navigate within the HART screens and the menu structure.

Table 6: Navigation buttons and functions

Button name	Function
up (F6)	moves cursor to previous line within a menu screen
down (F9)	moves cursor to next line within a menu screen
← (F8)	moves to previous menu
→ (F10)	moves to next menu or data entry window

Press the number key that matches the line number to select and activate the function. This provides a quick way to move through the menu structure.

A new feature in Ohmart View 2.00.1 and higher enables you to select the menu item by positioning the mouse cursor on the menu item text and pressing the left mouse button.

Note

Refer to Appendix I for detailed charts on the organization of the Ohmart View HART communication screens.

Help windows within the HART Screens Window

Most screen lines have an associated Help message. On menu screens, the Help message describes the function of the selected line. On data entry screens, the Help message describes the definition of the parameter to enter and hints for usage. If a Help message is available for a selected item, the word HELP is visible above the F1 indicator.

To access a help message, press the F1 key or click the **F1** button on the screen. The help message window opens. To close the help message window, press the F1 key again or click **Exit**.

Setting up the HART serial communication

The software must know which serial port the HART modem is plugged into. This port is now your default communication port.

Perform the following procedures to set up the communication:

Procedure 8: Set up HART serial communication

1. From the **Utilities** menu, select **Communication Setup**
2. In the HART **Connection** box, select **Comm Port 1**, **Comm Port 2**, **Comm Port 3**, or **Comm Port 4**, as appropriate
3. Click **OK** or press F4.

Connecting to a transmitter

Connecting to a transmitter enables Ohmart View to read and write data and display process information to the user.

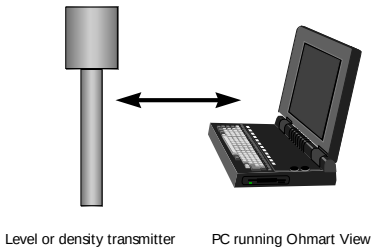

Figure 4: Connecting to a transmitter

Perform the following procedure to connect to a transmitter:

Procedure 9: Connect to transmitter

1. Physically interface the transmitter to the PC through the HART modem
   - Plug the HART modem into one of the PC's serial ports
   - Attach the cable clips anywhere across the current loop. At the transmitter electronics, test points H1 and H2 are convenient
2. From the **Utilities** menu, select **Communication Setup** menu. Verify that the correct serial COM port is selected
3. From the **Communication** menu, select **Connect to Unit**
   - The program scans the current loop for a connection to a transmitter unit. When it finds a unit, the Communications Status indicator displays 100%
   - On the HART screens, the Ohmart View program displays the configuration data stored in the transmitter's memory
   - Once you connect to the transmitter, any changes you make in Ohmart View, such as, variable values and setup parameters immediately write to the transmitter.

Note

Changes made to parameters or variable values in Ohmart View immediately write to the transmitter. In this respect, Ohmart View is significantly different from a HART Communicator or other hand-held terminals; changes you make with hand-held communicator do not write to the transmitter until you press SEND (F2).

Using the monitor

The monitor provides a graphical view of the process variable and milliamp output vs. time on the Ohmart View screen. The data writes to a file that you can use for further analysis.

Perform the following procedure to start the monitor:

Procedure 10: Start monitor

1. Connect to a transmitter or start test mode
2. Click on **Monitor** control, until the indicator displays Monitor ON, Recording OFF.

Perform the following procedure to stop the monitor:

Procedure 11: Stop monitor

- Click on the **Monitor** control, until the indicator displays Monitor OFF, Recording OFF.

Monitor scales

The current loop display reflects the output measurement from the transmitter DAC; it is not a calculated value. The data displays with the line colors as follows:

- process variable—blue
- 4–20mA output (current loop)—red

If they do not closely coincide, the calibration for the current loop may not be correct.

If the process variable and current loop output are inverted, the current loop values are set as follows:

- 4mA corresponds to the high process value
- 20mA corresponds to the low process value

When the two coincide, the blue line obscures the red line.

The connected transmitters settings (4 mA Level and 20 mA Level or 4mA Density and 20 mA Density) determine the lower and upper scale of the monitor. Therefore, it displays only the data within the current loop span and not the process span. Refer to the Density or Level Manuals for details on the current loop span and process span settings.

Note

Calibration of the current loop to a certified ammeter or the DCS normally occurs at installation of the transmitter. For details, refer to the Density or Level Transmitter Manuals.

Recording process data to a file

Use the recording function to write data that displays on the monitor to an ASCII text file. The file records the time and values of the process variable and milliamp output. You can choose the following recording options:

- Record the data every sample
- One sample per minute
- One sample per hour

You can open the data file in a spread sheet application for analysis.

Perform the following procedure to record process data to a file:

Procedure 12: Record process data to a file

1. Connect a transmitter before collection of measurement data
2. Click on the **Monitor** control until the indicator displays the option you want to select. These options are:

- Monitor ON, Recording Every Sample
- Recording, One Sample per Minute
- Recording, One Sample per Hour

3. A Save Chart Data As box opens and prompts you to enter the path and name for the data file. You can change both the path and file name but the default storage directory and file extension is:

- **C:\OHMVIEW**
- *.dta

4. You can change the sample rate at any time by clicking the **Monitor** control. The data continues to write to the same file until you select **Recording OFF**.

Note

The data files can become quite large (in the megabytes) if data collects over a long time (days). If you need to collect data over a long time, enter a longer data collection interval to keep the data file size down.

Downloading configurations

Configuration data stored in a transmitter can download to the PC where it saves as an ASCII file. The default directory path and extension for the file is as follows:

- **C:\OHMVIEW\CONFIG**
- *.cfg

You can use this file in the following ways:

- backup storage for the configuration data
- upload to other transmitters
- troubleshooting

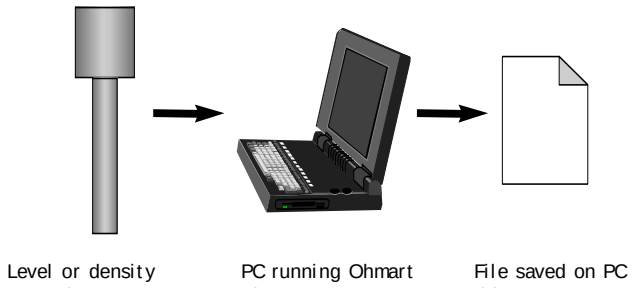

Figure 5: Download configuration data—transmitter connected

Perform the following procedure to download configuration data from a transmitter:

Procedure 13: Download configuration data

1. Connect the transmitter to the PC. Once the connection is made, all of the transmitter's configuration data is read by Ohmart View and is viewable on the program's screens.
2. From the **File** program menu, select **Download from Instrument**.
3. In the **Download Configuration From Unit** box, select or type in the path and name for the file. When the Download Complete dialog box opens, select **OK**.

- The file saves in ASCII format. You can view and print the file using any text editor.

> Note
>
> Ohmart discourages editing of the ASCII configuration file. Great damage can be done to the file by editing it outside Ohmart View.

Historical information and hundreds of variables write to the ASCII file during a download. This ASCII file provides a useful snapshot of the gauge status at the time of the download. However, not all of these variables write to a transmitter during an upload. See the section “Uploading configurations” for details on which variables upload from the ASCII file to a transmitter.

E-mailing files to Ohmart

Ohmart may want to evaluate your configuration (*.cfg) and data (*.dta) files. E-mail files to Ohmart Field Service at the following address: fieldservice@ohmartvega.com.

Uploading configurations

You can upload configuration data from a file on the PC to a connected transmitter. The Ohmart View program performs the following tasks during upload:

- Reads data from a stored configuration file
- Loads it into the computer's memory for display on the screen
- Writes it directly to the transmitter.

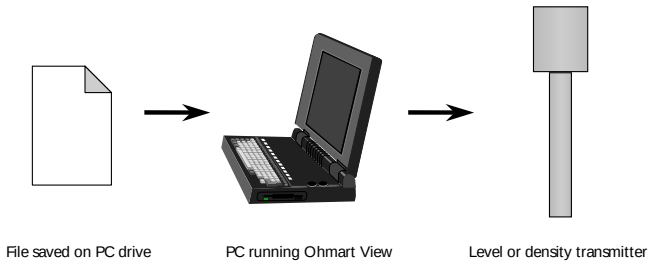

Figure 6: Uploading configuration data

Perform the following procedure to upload configuration data from a file to a transmitter:

Procedure 14: Upload configuration data

1. Connect a transmitter to the PC. Once you have a connection, all of the transmitter's configuration current data are viewable on the program's screens
2. From the **File** program menu, select **Upload to Instrument**
3. In the **Upload Configuration to Unit** box, select or type in the path and name for the configuration file to upload
4. Ohmart View reads the file and writes the configuration data to the transmitter. This overwrites existing data stored in the transmitter.

The configuration data can change at this time through normal operation of Ohmart View. Any changes write to the transmitter but not to the saved file that uploads. If you wish to save any changes made in this manner, you must download the transmitter data to the PC. If you choose the same file name, it overwrites the old configuration file.

Note

Not all data that downloads to an ASCII file uploads to a transmitter. Only the configuration data that you edit through the HART screens writes to a connected transmitter during an upload routine. These are primarily setup variables and calibration data. Some of the items that do not upload are:

- Standardize history
- Relay status
- Process value.

Using the test mode

The test mode enables operation of the software without a physical connection to a unit. Test mode enables you to make edits and save configuration (*.cfg) files without updating a connected transmitter (that is, no changes are sent to, or written to, a transmitter).

Test mode simulates connection to a transmitter; it behaves as if the computer is connected to a virtual, or imaginary, transmitter.

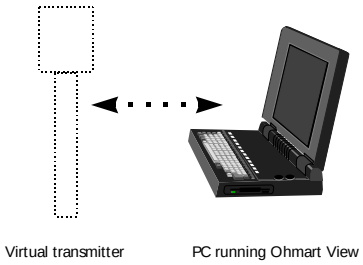

Figure 7: Test mode connection to virtual transmitter

When the software is in test mode, the Unit Tag indicator on the screen displays either of the following:

- Test Den
- Test Lev

Perform the following procedure to start test mode:

Procedure 15: Start test mode

1. From the **Program** menu, select **Communications**
2. From the **Communications** menu, select **Density Gauge Test Mode** or **Level Gauge Test Mode**

- Density Gauge Test Mode loads default variable values for a density gauge application
- Level Gauge Test Mode loads default values for a level application

3. Check the unit tag indicator to verify test mode is active. When the system is in test mode, the tag indicator reads either Test Den or Test Lev

- Changes made while in test mode can save to a configuration file or you can open already saved configuration files on the disk. See the procedures that follow.

Perform the following procedure to end test mode:

Procedure 16: End test mode

1. From the **Program** menu, select **Communications**
2. From the **Communications** menu, select **Disconnect from Unit**.

Opening configuration files in test mode

Use Ohmart View software in test mode to view or edit configuration files. This function is useful for modification or creation of configuration files that can upload later to a transmitter.

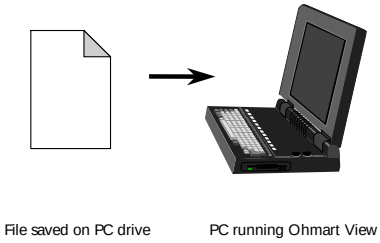

Figure 8: Opening configuration files in test mode

Once the file opens, it is available to edit in Ohmart View. You can save the file with the same or a new file name. Refer to “Saving configuration files”.

Perform the following procedure to open a configuration file:

Procedure 17: Open configuration files in test mode

1. Verify that the Ohmart View is in test mode by checking the Unit Tag indicator on the screen
   - If it is not in test mode, select either **Density Gauge Test Mode** or **Level Gauge Test Mode** from the **Communications** menu
   - This initializes all variables and parameters to the default values for either density or level applications
2. From the **File** menu, select **Upload to Test Instrument**
3. In the **Upload Configuration to Unit** box, select or type in the path and name of the configuration (*.cfg) file you want to open
   - Once the file opens, the variables and parameters change to the values in the configuration file.

Saving configuration files in test mode

In test mode, Ohmart View can save the currently open configuration file to a PC drive.

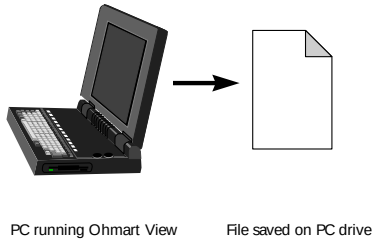

Figure 9: Saving configuration files in test mode

Perform the following procedure to save a configuration file:

Procedure 18: Save a configuration file

1. Verify that the software is in test mode

- Check the mode indicator on the display screen. If it is not in test mode, select either **Density Gauge Test Mode** or **Level Gauge Test Mode** from the **Communications** menu
- All variables and parameters initialize to the default values for either density or level applications

2. From the **File** menu, select **Download from Test Instrument**
3. In the **Download Configuration from Unit** box, select or type in the path and name of the configuration (*.cfg) file you want to save.

Example: Transferring a configuration file

An example of a practical application of Ohmart View software follows:

- Download a configuration file from transmitter A
- Open and edit the file in test mode
- Upload the configuration file to transmitter B.

Steps 1 through 3 explain how to transfer a configuration file.

Step 1: Downloading configuration from transmitter A

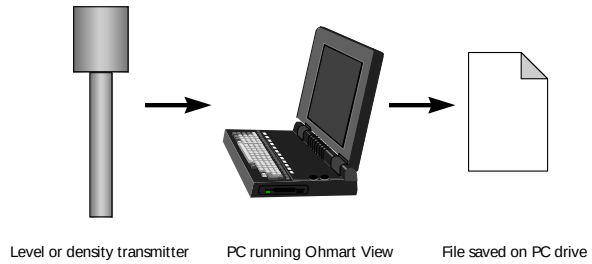

Figure 10: Downloading the configuration from transmitter A to file A.CFG

Procedure 19: Download configuration from transmitter A

1. Plug the HART modem into a PC serial port
2. Use the cable mini-clips to attach across the current loop of transmitter A. Test points H1 and H2 at the transmitter gauge electronics provide convenient access
3. Start Ohmart View software by typing **OHMVIEW** at the **C:\OHMVIEW** prompt. Windows 95 or Windows 98 users should select the **Run** command on the **Start** button
4. From the **Communications** menu, select **Connect to Unit**. The Ohmart View software displays the variable values and parameters for transmitter A
5. From the **File** menu, select **Download from Instrument** to save transmitter A's configuration data as a file on the PC
6. Save the configuration with a file name, such as, **C:\OHMVIEW\A.CFG**
7. From the **Communications** menu, select **Disconnect from Unit**. This ends communication with transmitter A
8. Physically disconnect the cable min-clips from transmitter A.

Step 2: Opening, editing and saving the configuration using test mode

This step illustrates how to edit a configuration file off-line that can upload later to a transmitter.

> Note
>
> Alternatively, you can upload the file to transmitter B without editing it in test mode, and you can make any changes while there is a connection to transmitter B.

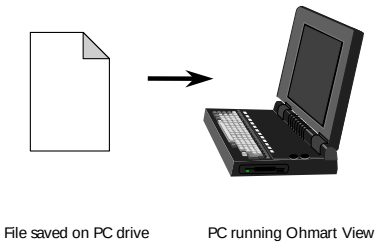

Figure 11: Opening file A.CFG in test mode

Procedure 20: Open, edit, and save the configuration using test mode

1. Start Ohmart View software by typing **OHMVIEW** at the **C:\OHMVIEW** prompt. Windows 95 or Windows 98 users should select the **Run** command on the **Start** button
2. From the **Communications** menu, select **Density Test Mode** or **Level Test Mode**
3. From the **File** menu, select **Upload to Test Instrument**
4. In the **Upload Configuration to Unit** box, select or type in **C:\OHMVIEW\A.CFG** to open the configuration file for transmitter A Ohmart View loads the configuration values stored in the file **A.CFG**
5. From the **File** menu, select **Download from Test Instrument** to save the file as a different name to prevent overwriting the data on **A.CFG**
6. When the **Download Configuration from Unit** box opens, type in **C:\OHMVIEW\B.CFG** as the file name
7. Use Ohmart View to make the necessary edits to the configuration file so it properly configures for transmitter B
8. From the **File** menu, select **Download from Test Instrument** to save all the edits to **C:\OHMVIEW\B.CFG**
9. From the **Communications** menu, select **Disconnect from Unit** to close the file.

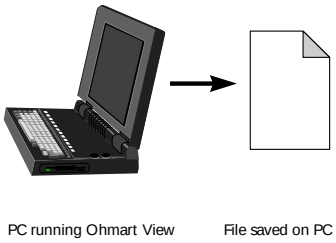

Figure 12: Saving the file as B.CFG in test mode

Step 3: Uploading the file to transmitter B

This step illustrates how to upload a configuration file to a transmitter.

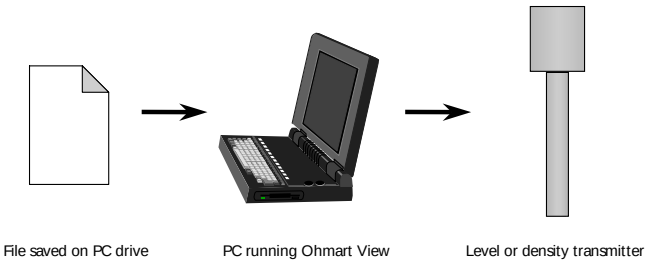

Figure 13: Uploading the file B.CFG to transmitter B

Procedure 21: Upload file to transmitter B

1. Plug the HART modem into a PC serial port
2. Use the cable mini-clips to attach across the current loop of transmitter B. Test points H1 and H2 at the transmitter gauge electronics provide convenient access
3. Start Ohmart View software by typing **ohmview** at the **c:\ohmview** prompt
4. From the **Program** menu, select **Communications**
5. From the **Communications** menu, select **Connect**
6. From the **File** menu, select **Upload to Instrument**
7. In the **Upload Configuration to Unit** box, select file **C:\OHMVIEW\B.CFG** to upload to transmitter B

- The configuration data that uploads overwrites the stored data in the transmitter memory

8. From the **Communications** menu, select **Disconnect from Unit**.

Notes

Sample functions—density applications

This section explains the requirements for a typical initial calibration and periodic standardization (re-zero) of an Ohmart model DSTH density transmitter using the Ohmart View software. Refer to the Density Manual for detailed information on calibration techniques.

Calibration

Set low density (zero)

Setting the low density for calibration requires the following:

- measurement with the DSTH of the low process sample
- entry of the actual density

This sets the zero of the calibration curve. Perform this procedure either before or after setting the high density, but only after you correctly enter the process span in the **Initial Setup** screen.

Complete the following checklist before starting the cal low data collection:

☑ Fill vessel or pipe with low process

☑ Connect to the unit to be calibrated

☑ Have actual density (or percent solids) value for this sample from lab ready to enter

☑ Make sure the data collection time is set long enough for an accurate sample. See the Initial factory setup appendix in the DSTH Manual for details.

Perform the following procedure to set the low density for calibration:

Procedure 22: Set low density

1. From the HART communications **Online** screen, select **Main Menu**
2. From the **Main Menu**, select **Calibrations**
3. From the **Calibrations** menu, select **Initial calibration**
4. From the **Initial calibration** menu, select **Two Point Calibration**
5. From the **Two Point Calibration** menu, select **Set Calibration low density**
6. When prompted, select **Yes** to start data collection. The on-screen counter displays the time left. Click **ABORT** or press F3, if necessary, to discontinue data collect
7. At the Input Non-compensated Value prompt, enter the actual density from the lab in engineering units.

Set high density

Setting the high density for calibration requires measurement of the high process sample with the DSTH and entry of the actual density. This sets the gain of the calibration curve. Perform this procedure either before or after setting the low density, but only after correctly entering the process span in the **Initial Setup** screen.

Note

You must perform data collection for the low and high density within ten days of each other for a good calibration. The low and high values must be more than 10% of the process span apart for the most accurate calibration.

Complete the following checklist before starting the high calibration data collection:

☑ Fill vessel or pipe with high process.

☑ Have actual density (or percent solids) value for this sample from lab ready to enter.

Perform the following procedure to set the high density for calibration:

Procedure 23:Set high density

1. From the HART communications **Online** screen, select **Main Menu**
2. From the **Main Menu**, select **Calibrations**
3. From the **Calibrations** menu, select **Initial calibration**
4. From the **Initial calibration** menu, select **Two Point Calibration**
5. From the **Two Point Calibration** menu, select **Set Calibration high density**
6. When prompted, select **Yes** to start data collection. The on-screen counter displays the time left. Select **ABORT** or press F3 if necessary to discontinue data collect
7. At the Input Non-compensated Value prompt, enter the actual density, in engineering units, from the lab.

Calculate calibration

After collecting the high and low-density data for calibration, the DSTH makes the calibration calculation.

Perform the following procedure to calculate the calibration:

Procedure 24: Calculate calibration

1. From the **Main Menu**, select **Calibrations**
2. From the **Calibrations** menu, select **Two Point Calibration**
3. From the **Two Point Calibration** menu, select **Calibrate Result**
4. The screen displays the results of the low and high sensor counts and values for review

- If the data is valid, do not edit the value, and click **ENTER** or press F4 to continue
- To collect new data, select **ABORT** and repeat the Set low density and Set high density procedures
- To edit the counts and/or calibration values, select **Yes** and click **ENTER** or press F4.

Periodic standardization

Complete the following checklist before performing standardization:

- ☑ Have the standardization material of known density ready to measure. Refer to the above guidelines for the appropriate choice
- ☑ Have actual density (or percent solids) value from the lab ready to enter

Complete the following procedure to perform a periodic standardization:

Procedure 25: Periodic standardization

1. From the HART communications **Online** screen, select **Main Menu**
2. From the **Main Menu**, select **Calibrations**
3. From the **Calibrations** menu, select **Process standardize**
4. The **Process standardize** screen prompts if you want to take data. Select **Enter** or press F4 to take data
5. The timer counts down. When it is finished collecting data, it displays the default standardize value. If this is not the correct value for this standardize, you can enter the correct value.

Sample functions—level applications

This section shows the requirements for a typical initial calibration and periodic standardization (re-zero) of the following Ohmart model transmitters using Ohmart View software:

- LSTH
- LJTH
- LNTH level
- FiberFlex LFXG-H

Refer to the Level Transmitter or FiberFlex LFXG-H Manuals for a detailed discussion on calibration techniques.

Calibration

Set low level

Setting the low level for calibration requires measurement with the level transmitter of the low process sample and entry of the actual level. This sets the zero of the calibration curve. Perform this procedure either before or after setting the high level, but only after correctly entering the process span in the **Initial Setup** screen.

Complete the following checklist before starting the low level calibration data collection:

☑ Fill vessel to its low level

☑ Connect to the unit to be calibrated

☑ Have actual level value ready to enter

☑ Make sure the data collection time is set long enough for an accurate sample. See the Initial setup appendix in the Level Transmitter Manual for details.

Perform the following procedure to set the low level for calibration:

Procedure 26: Set low level for calibration

1. From the HART communications **Online** screen, select **Main Menu**
2. From the **Main Menu**, select **Calibrations**
3. From the **Calibrations** menu, select **Initial calibration**
4. From the **Initial Calibration** menu, select **Two Point Calibration**
5. From the **Two point calibration** menu, select **Set Calibration low level**
6. At the, Set Process to Low Calibration Point. Take data? prompt, select **Yes**. The on-screen counter displays the time left
7. At the Input Non-compensated Value prompt, enter the actual level in engineering units. Make note of the sensor counts and the level value.

Note

While the vessel is empty, we recommend collecting a linearizer data point, so you do not have to empty the vessel again. See “Collecting linearizer table data” for instructions.

Set high level

Setting the high level for calibration requires measurement with the level transmitter of the high process sample and entry of the actual level. This sets the gain of the calibration curve. Perform this procedure either before or after setting the low level.

Complete the following checklist before starting the high level calibration data collection:

☑ Fill vessel or pipe with high process, or close the source holder shutter to simulate the high process level

☑ Have actual level ready to enter.

Perform the following procedure to set high level for calibration

Procedure 27: Set high level for calibration

1. From the HART **Online** communications screen, select **Main Menu**
2. From the **Main Menu**, select **Calibrations**
3. From the **Calibrations** menu, select **Initial calibration**
4. From the **Initial calibration** menu, select **Two Point Calibration**
5. From the **Two Point calibration** menu, select **Set Calibration high level**
6. At the Set Process to High Calibration Point. Take Data?" prompt, select **Yes** to start data collection. The on-screen counter displays the time left. Click **ABORT** or press F3 if necessary to discontinue the data collect
7. At the Input Non-compensated Value prompt, enter the actual level in engineering units.

Collecting linearizer table data

In level applications, we recommend collecting data points between the high and the low calibration points so that the Ohmart level transmitter calculates a curve based on your samples.

Note

If you are unable to change the level in the vessel, you can use an alternate method to obtain the linearizer data. See Procedure 33: Alternate linearizer data collection method.

Complete the following checklist before collecting the linearizer table:

☑ Make sure the linearizer type is set as Table, non-linear

☑ Be prepared to set the level and take data. Ten levels are optimal, although you can use fewer than 10

☑ Be ready to enter levels into the transmitter

☑ Linearizer table data can be collected along with the data collection for the high and low calibrate.

Note

You must include the high and low calibrate levels as linearizer data. You can accomplish this in one of two ways:

- Take linearizer data using Procedure 28: Collecting linearizer table data while the vessel is in the low or high conditions for the two point calibration steps.
- Make note of the sensor counts and levels during the two point calibration steps, and enter them into the linearizer data manually with Procedure 29: Viewing or editing datapoints.

Perform the following procedure to collect linearizer table data:

Procedure 28: Collecting linearizer table data

1. From the **Online** menu, select **Main Menu**
2. From the **Main Menu**, select **Calibrations**
3. From the **Calibrations** menu, select **Linearizer**
4. From the **Linearizer** menu, select **Linearizer data**
5. From the **Linearizer data** menu, select **Linear data collect**
6. From the **Linear data collect** menu, select **Collect datapoint**
7. Enter the actual known level of process when prompted
8. Wait for the timer to count down
9. Select **Accept** or **Reject** when the results display
10. Repeat procedure for all available samples.

Viewing or editing datapoints (optional)

You can view or edit datapoints at any time during or after data collection. You can edit the level value and sensor counts as necessary. You may use this procedure to manually add the sensor counts and levels at the low calibration and high calibration vessel conditions.

> Note
>
> Use extreme care when you edit linearizer datapoints. Altering the values can greatly affect the gauge's calibration.

Perform the following procedure to view or edit datapoints:

Procedure 29: Viewing or editing datapoints

1. From the **Main Menu**, select **Calibrations**
2. From the **Calibrations** menu, select **Linearizer**
3. From the **Linearizer** menu, select **Linearizer data**
4. From the **Linearizer data** menu, select **Linear data collect**
5. From the **Linear data collect** menu, select **View/edit datapoints**
6. The **View/edit datapoints** screen displays. Ohmart View displays a table, with the level and counts, for each datapoint
7. To edit the datapoints, click on the value(s) you want to be change. Type in the new values and click **UPDATE POINTS** or press F5
8. Click **EXIT** or press F4. A message indicates the old datapoints are being deleted from the instrument and new ones are being uploaded.

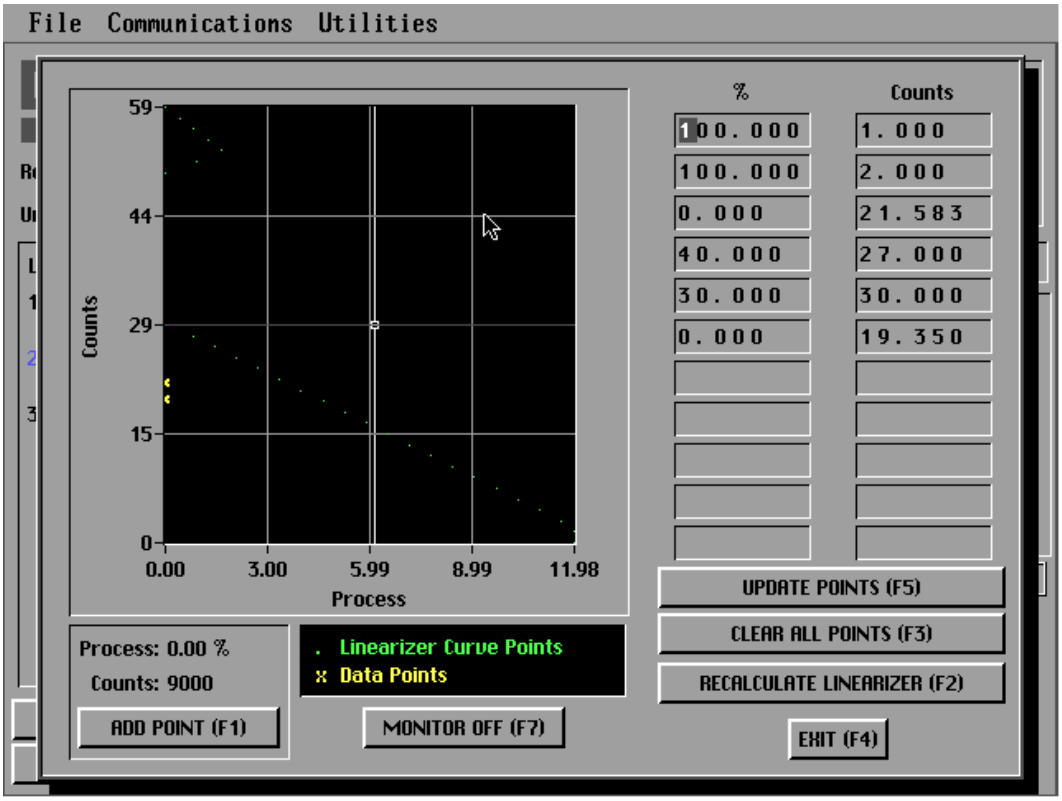

Figure 14: View/edit datapoints screen

Calculating the linearity

If you want to use the newly collected linearizer table data with the calibration, perform this step before Procedure 32: Calculate calibration.

> Note
>
> Be sure the linearizer data includes the low level and high level calibration value before calculating the linearity.

Perform the following procedure to produce a new linearizer table:

Procedure 30: Calculate the linearity

1. From the HART **Online** communications screen, select **Main Menu**
2. From the **Main Menu**, select **Calibrations**
3. From the **Calibrations** menu, select **Linearizer**
4. From the **Linearizer** menu, select **Linearizer data**
5. From the **Linearizer data** menu, select **Linear data collect**
6. From the **Linear data collect** menu, select **Calculate linearity**
7. At the Proceed with Linearity Calculation? prompt , select **Yes** to proceed. The new linearizer table calculates and saves to the transmitter.

Viewing/editing the linearizer table

Perform the following procedure to view and edit the linearizer table:

Procedure 31: View/edit the linearizer table

1. From the **Main Menu**, select **Calibrations**
2. From the **Calibrations** menu, select **Linearizer**
3. From the **Linearizer** menu, select **Linearizer data**
4. From the **Linearizer data** menu, select **Linearizer table**
5. At the, Downloading the Linearizer Curve Takes Approximately 20 Seconds. Do You Wish to Continue? prompt, select **Yes** to view the linearizer table.

Calculate calibration

After you collect the high and low level data for calibration, and after the optional linearizer table data are collected and the linearity is calculated, the Ohmart View can make the calibration calculation.

Procedure 32: Calculate calibration

1. From the HART **online** communications screen, select **Main Menu**
2. From the **Main Menu**, select **Calibrations**
3. From the **Calibrations** menu, select **Initial calibration**
4. From the **Initial calibration** menu, select **Two point calibration**
5. From the **Two Point calibration** menu, select **Calibrate result**.
6. The screens display the results of the low calibration and high calibration sensor counts and values for review. At this point, you can collect new data by repeating the Set low level and Set high level procedures, or click **OK** or press F4 to continue.

Alternate linearizer data collection method with empty vessel

If you are unable to vary the level in the vessel sufficiently to collect linearizer data, you can use this alternate method with an empty vessel.

> Note
>
> Use these steps instead of Collecting linearizer table data and Calculating the linearity. This procedure must be followed by Procedure 32: Calculate calibration.

Before collecting the linearizer table data:

- ☑ Set the level to empty or as low as possible
- ☑ Have a survey meter available to read the radiation field intensity in mR/hr or µSv/hr
- ☑ Be prepared to take radiation field readings along the entire height of the vessel. You must know the equivalent process level (in the units set in the Initial Settings) for each meter position.

Complete the following procedure to perform an alternative linearizer data collection method:

Procedure 33: Alternate linearizer data collection method

1. Make sure the source holder is in the Open or On position to establish a radiation field
2. To collect the data, use a survey meter to make measurements along the entire height of the vessel, for example in 10% increments from 0% to 100%. Record the radiation field value (in mR/hr or µSv/hr) at each level (in process units)
3. From the **Main Menu**, select **Calibrations**
4. From the **Calibrations** menu, select **Linearizer**
5. From the L**inearizer** menu, select **Linearizer data**
6. From the **Linearizer data** menu, select **Linearizer table**
7. At the Downloading the Linearizer Curve Will Take Approximately 20 Seconds. Do You Wish to Continue? prompt, select **Yes** to view the linearizer table
8. When the linearizer table displays (see Figure 15:Linearizer table) click **Use Radiation Field Values** or press F2

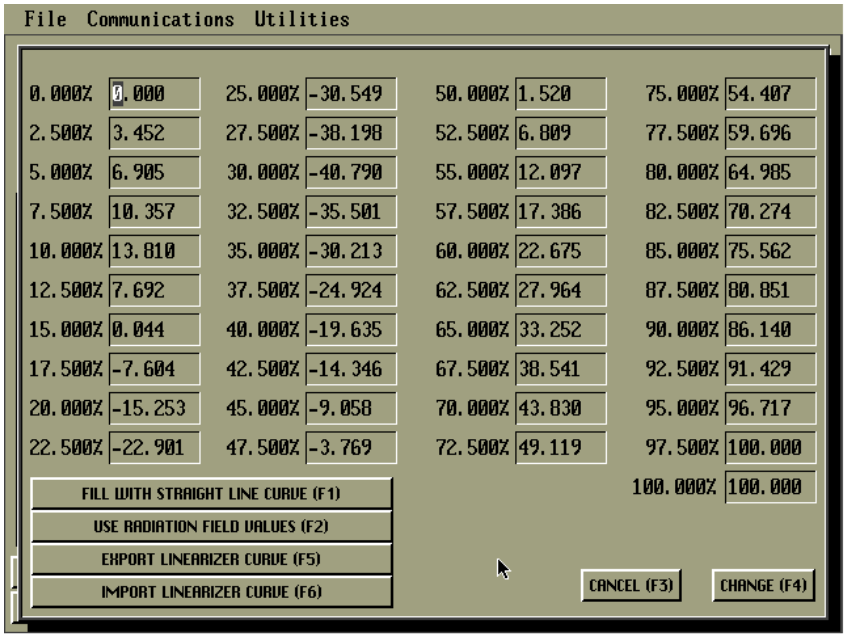

Figure 15:Linearizer table

9. A window opens to enable entry of the process levels and corresponding radiation field values. Enter all the data, and click **Calculate** or press F4.

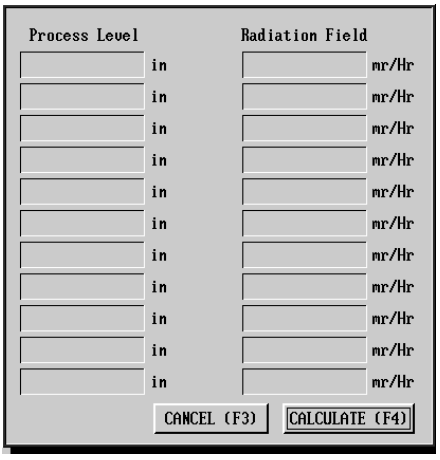

Figure 16: Process level and radiation field values window

Note

You must enter complete information for process levels and corresponding radiation fields. Failure to enter complete data causes the program to terminate.

Ohmart View calculates a new linearizer based on the field readings entered. The new linearizer replaces the old one.

Periodic standardization

Complete the following checklist before performing standardization:

☑ Have the level set to empty, or 0%.

Complete the following procedure to perform a standardization:

Procedure 34: Perform a standardization

1. On the HART **Online** communication screen, select **Main Menu**
2. From the **Main Menu**, select **Calibrations**
3. From the **Calibrations** menu, select **Process standardize**
4. The **Process standardize** screen prompts if you want to take data. Select **Yes**
5. The timer counts down. When it is finished collecting data, it displays the default standardize value. If this is not the correct value for this standardize, you can enter the correct value.

Notes

Appendix I: HART screen menus and functions

The HART screens are menus of functions used to calibrate, diagnose, and setup the transmitter. Once the transmitter is setup and the calibration is complete, the transmitter does not need to be connected to the HART modem and PC for normal operation, because the 4–20mA output signal comes directly from the transmitter.

Detailed information concerning setup, calibration, and diagnostics with the transmitter is found in the transmitter manual.

The following menus and functions are examples of the Ohmart HART communication screens that interface with the Ohmart level gauge. Some of the screens and functions may vary when used with the Ohmart density gauge.

Program menu—transmitter not connected

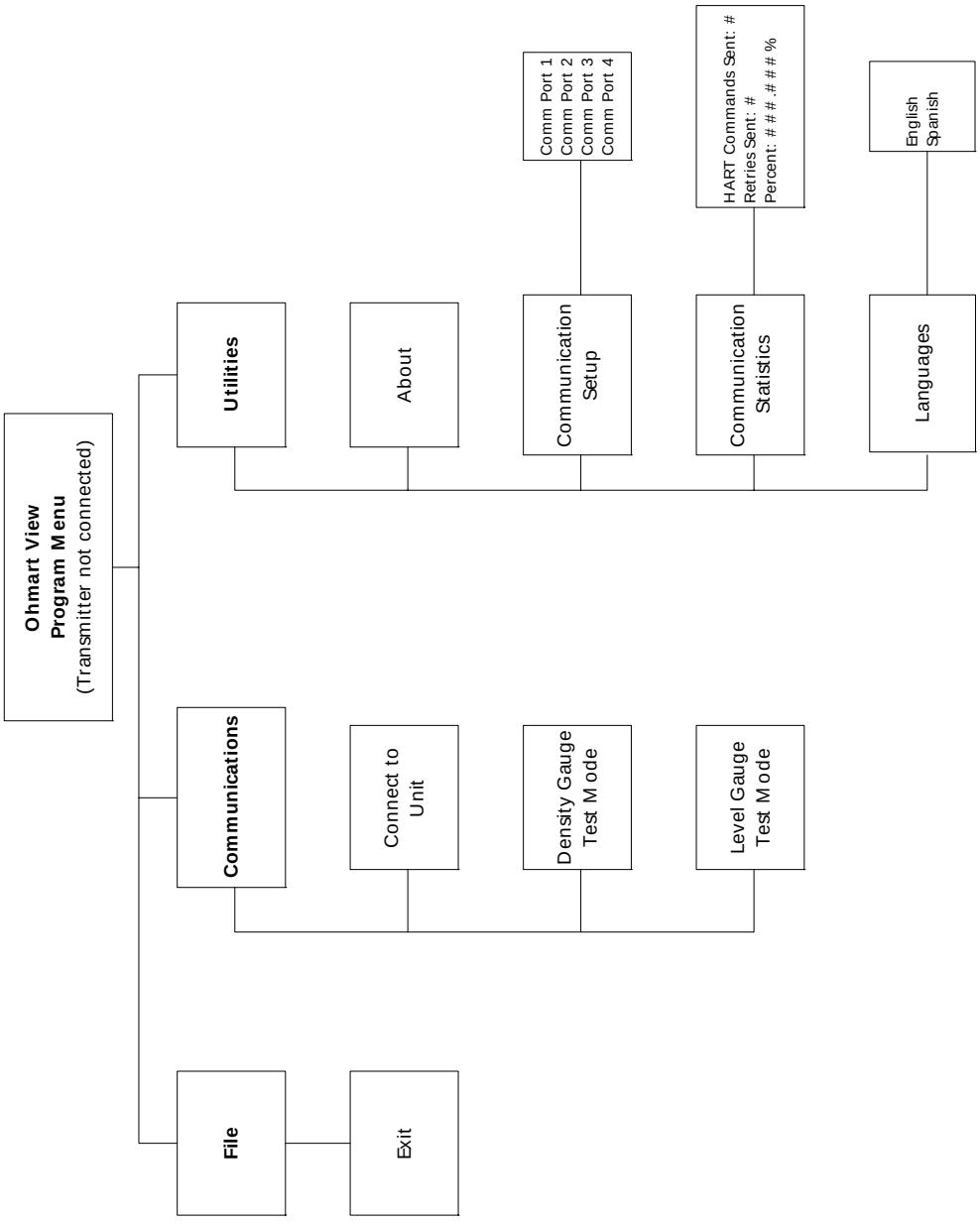

Figure 17: Program menu—transmitter not connected

Program menu—transmitter connected

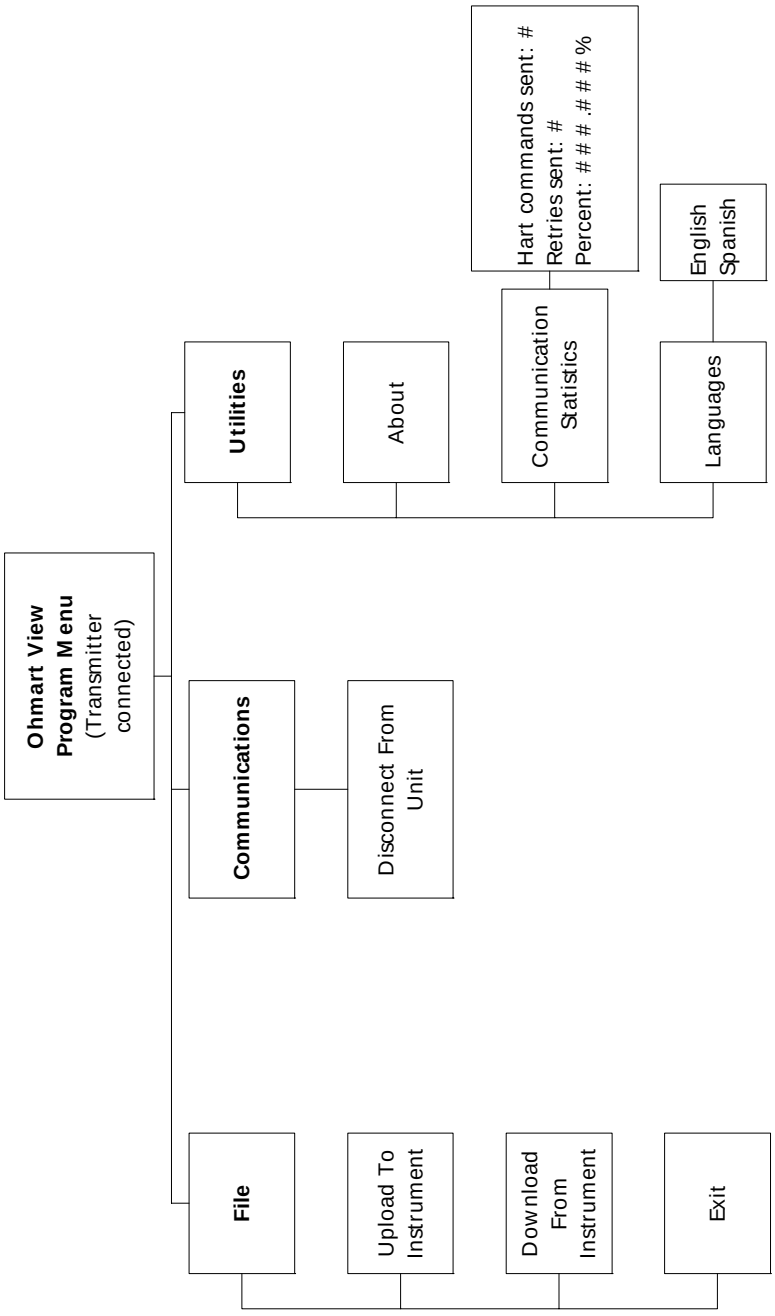

Figure 18: Program menu—transmitter connected

HART screen Features

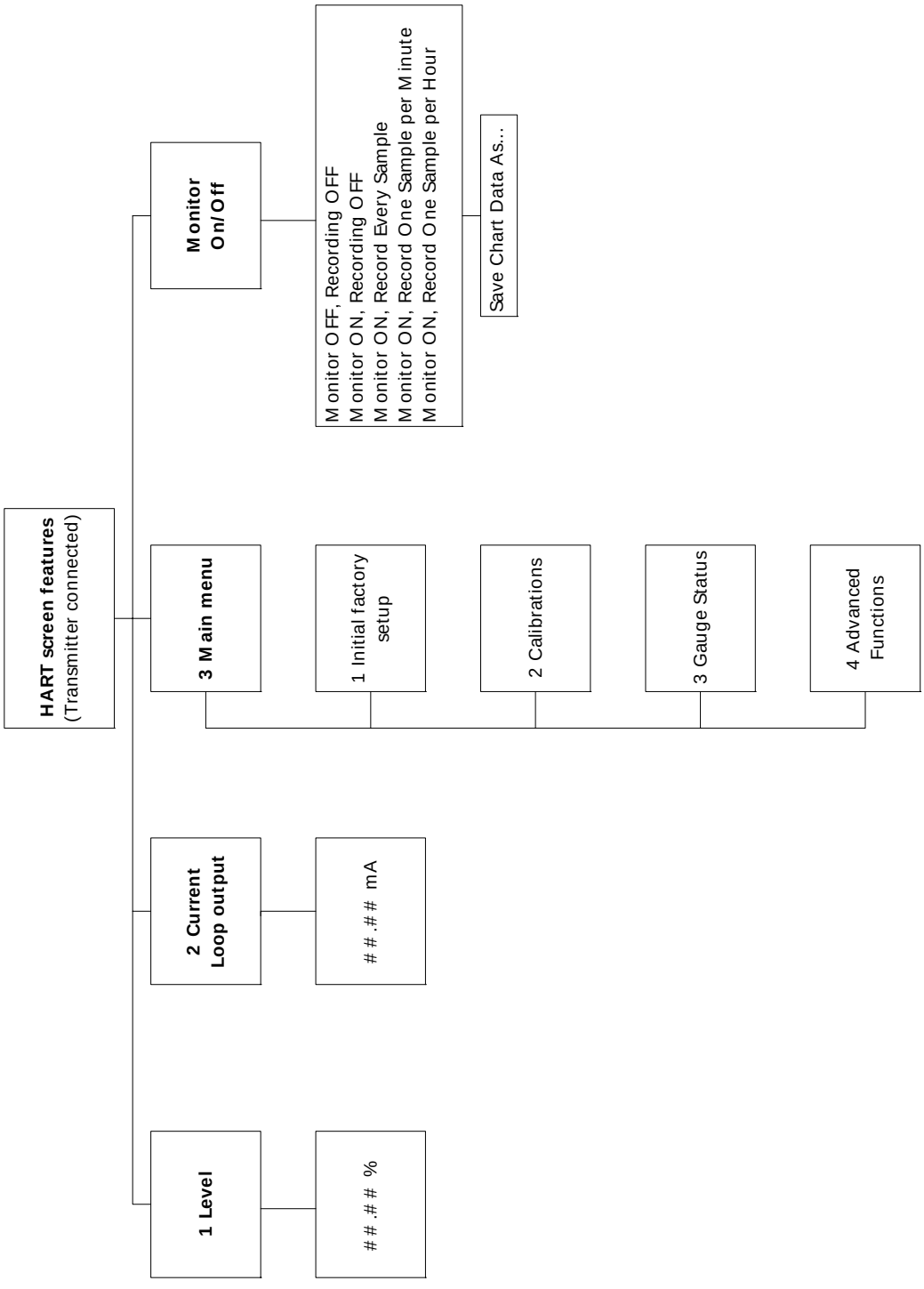

Figure 19: HART screen features

Initial factory setup menu

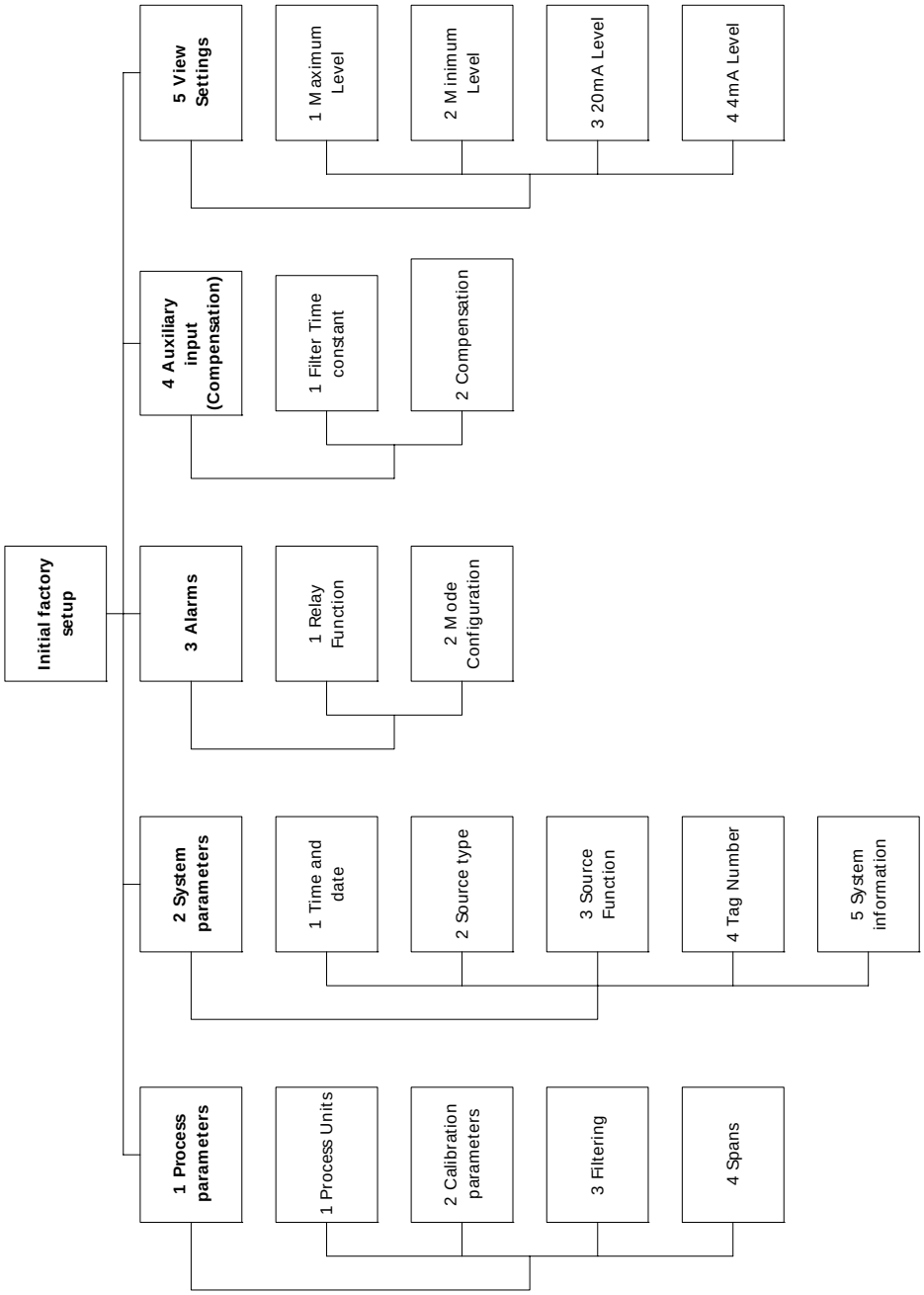

Figure 20: Initial factory setup menu

Initial factory setup menu—Process parameters

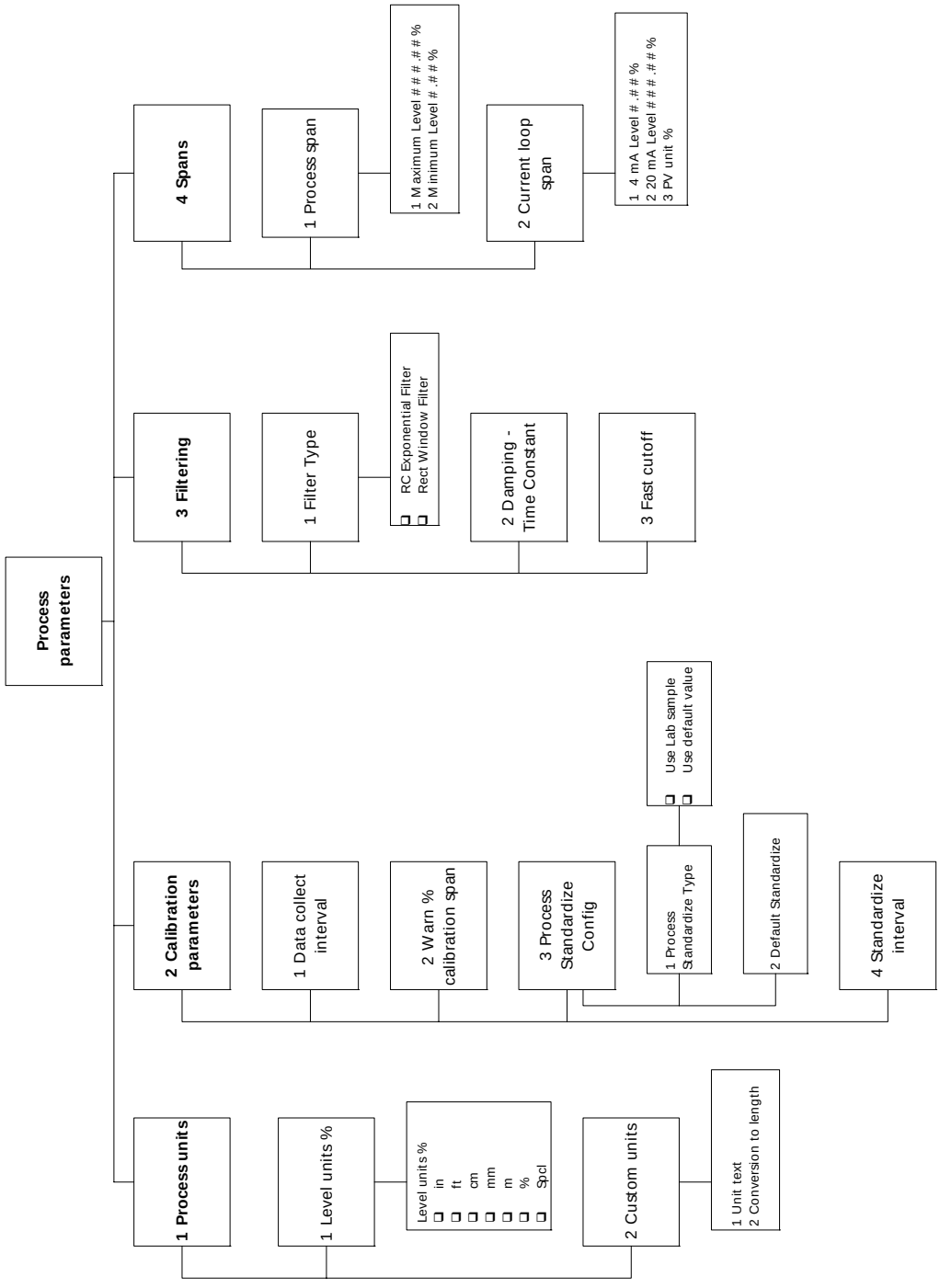

Figure 21: Initial factory setup menu—Process parameters

Initial factory setup menu —System parameters

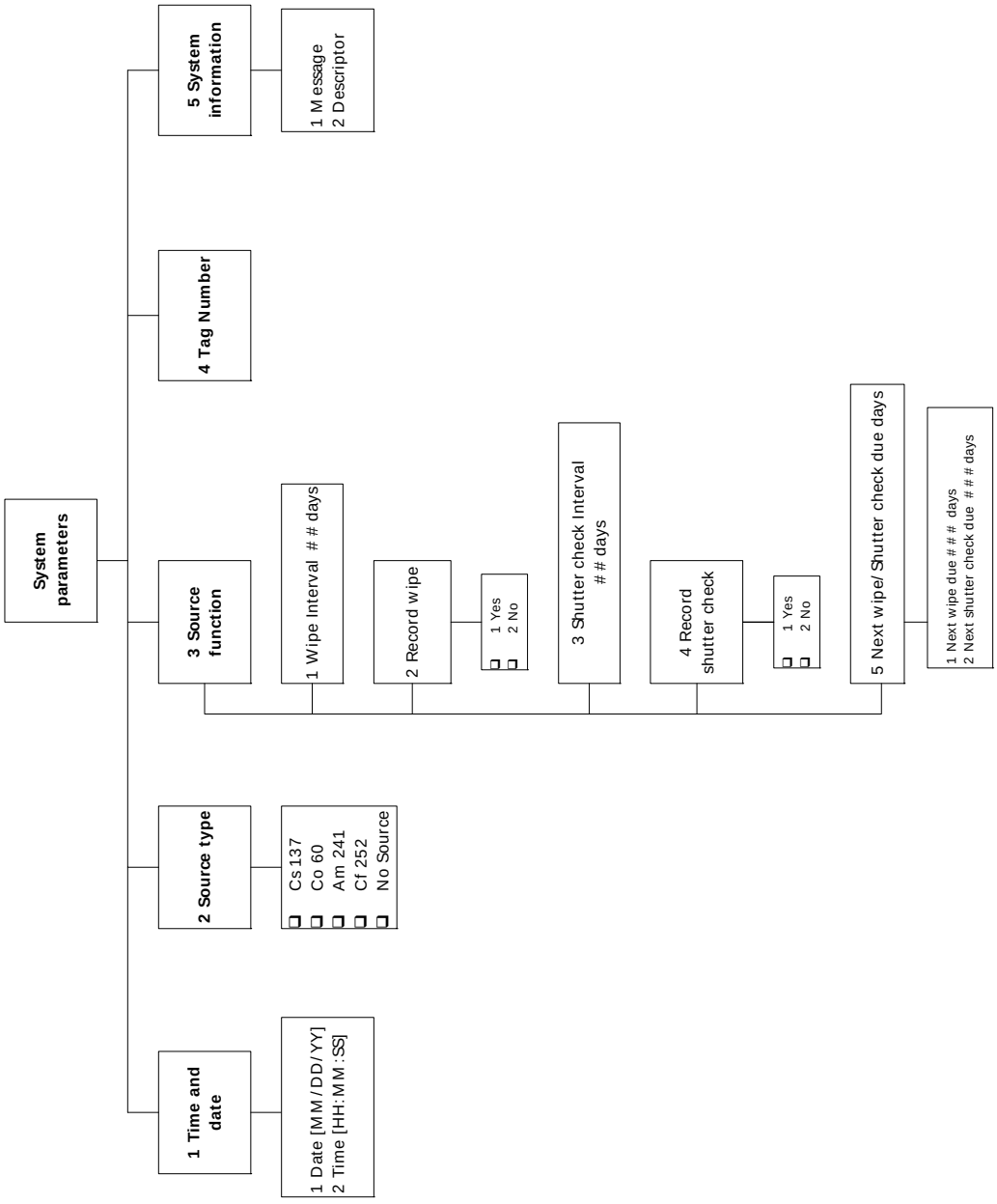

Figure 22: Initial factory setup menu—System parameters

Initial factory setup menu—Alarms

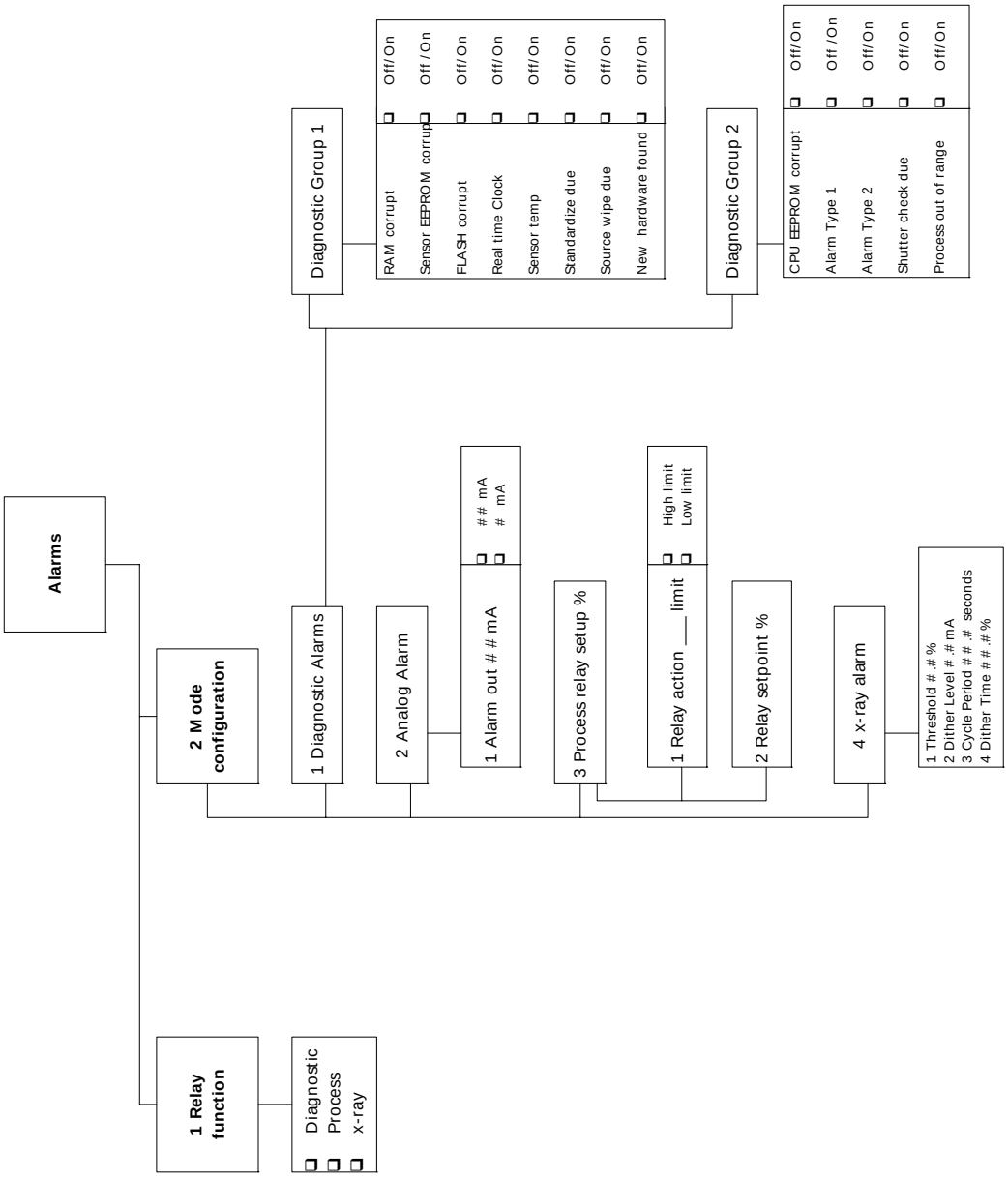

Figure 23: Initial setup menu—Alarms

Initial factory setup menu—Auxiliary input (Compensation)

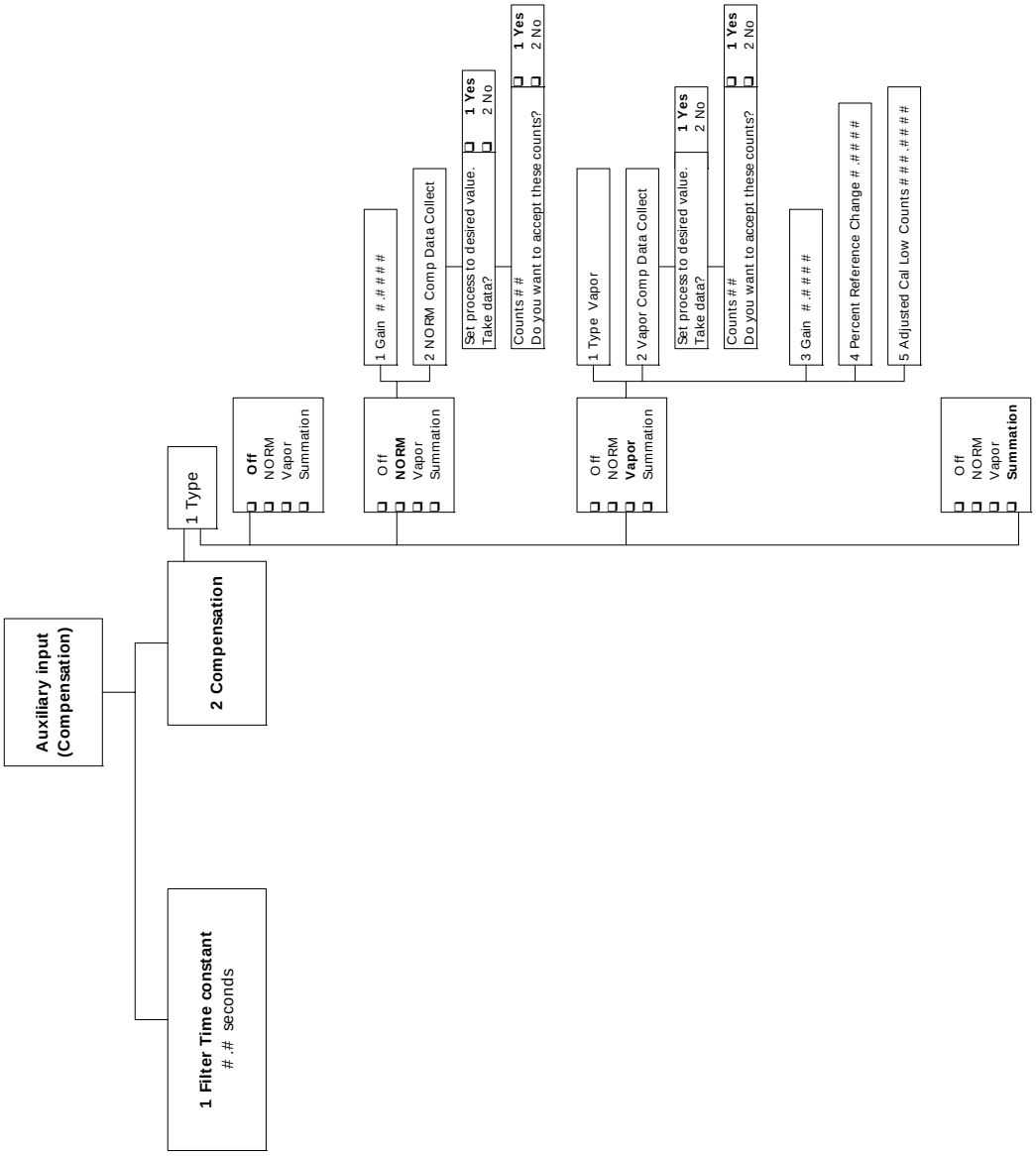

Figure 24: Initial factory setup menu—Auxiliary input (Compensation)

Initial factory setup menu—View Settings

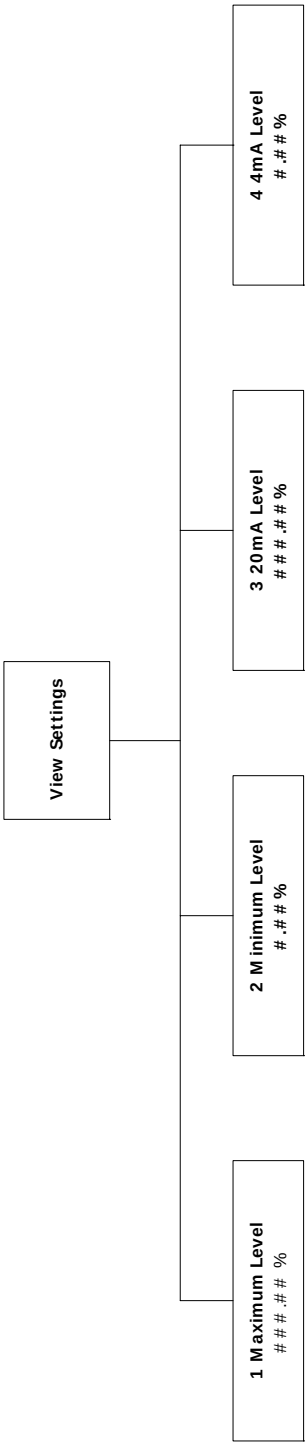

Figure 25: Initial factory setup menu—View Settings

Calibrations menu

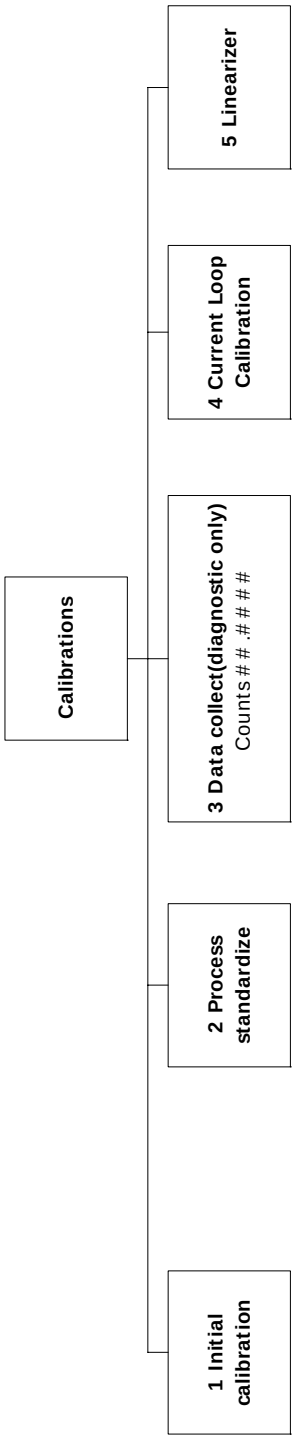

Figure 26: Calibrations menu

Calibration menu—Initial calibration

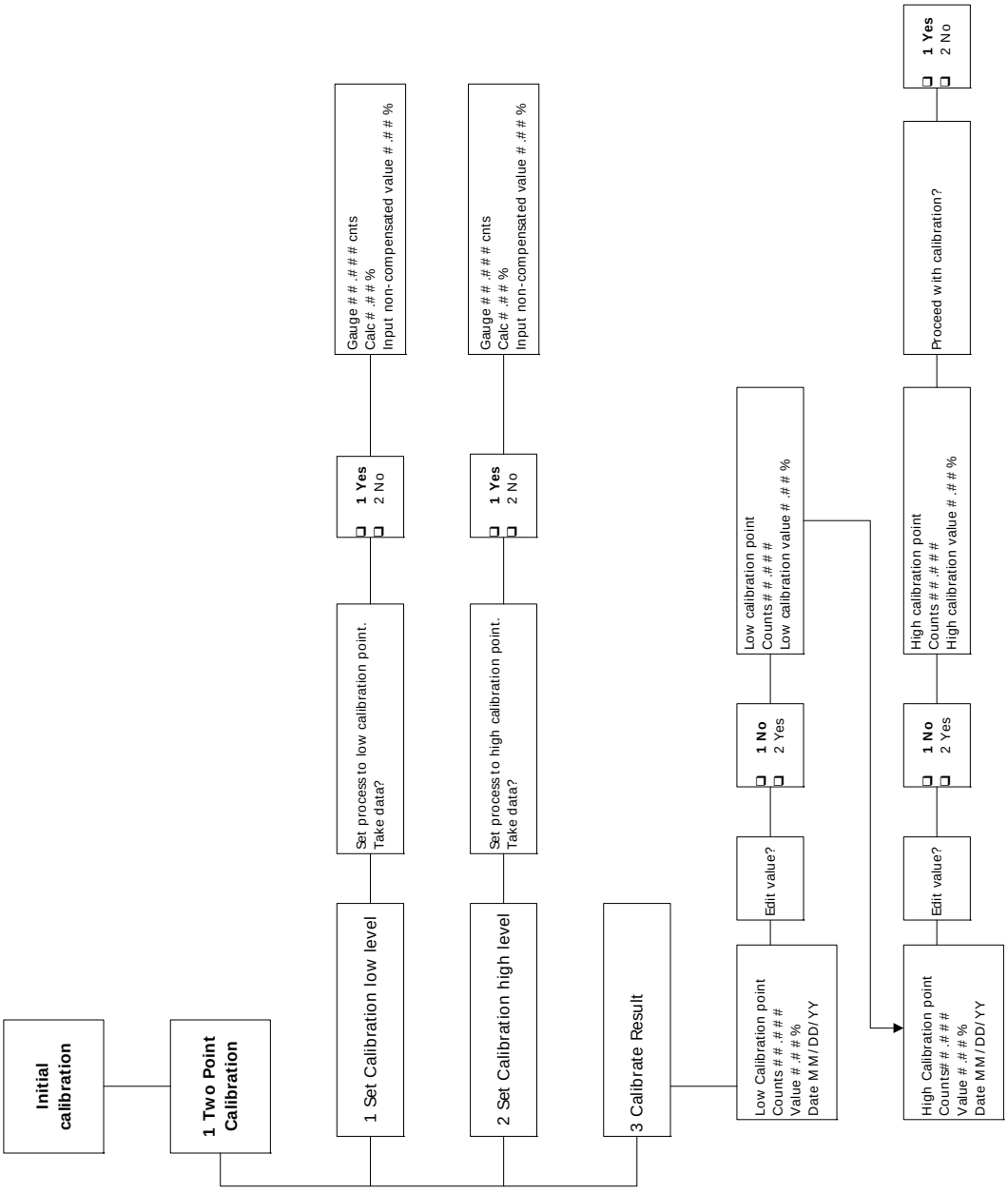
Initial calibration
1 Two Point Calibration
1 Set Calibration low level
2 Set Calibration high level
3 Calibrate Result
Set process to low calibration point. Take data?
Set process to high calibration point. Take data?
Gauge # # . # # # cnts
Calc # . # # %
Input non-compensated value # . # # %
1 Yes
2 No
Low Calibration point
Counts # # . # # #
Value # . # # %
Date MM/DD/YY
Edit value?
1 No
2 Yes
Low calibration point
Counts # # . # # #
Low calibration value # . # # %
High Calibration point
Counts# # . # # #
Value # . # # %
Date MM/DD/YY
High calibration point
Counts # # . # # #
High calibration value # . # # %
Proceed with calibration?

Figure 27: Calibration menu—Initial calibration

Calibrations menu—Process standardize

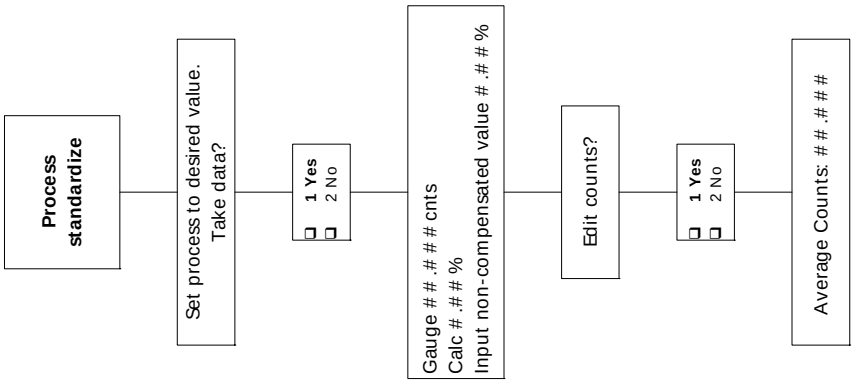
Process standardize
Set process to desired value. Take data?
1 Yes
2 No
Gauge # # . # # # cnts
Calc # . # # %
Input non-compensated value # . # # %
Edit counts?
1 Yes
2 No
Average Counts: # # . # # #

Figure 28: Calibrations menu—Process standardize

Calibrations menu—Data collect(diagnostic only)

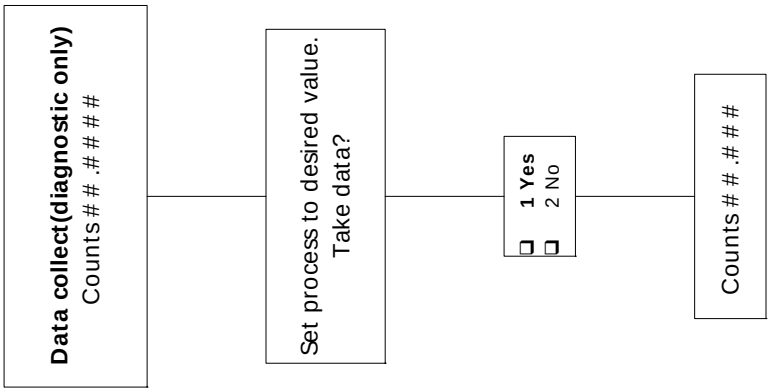

Figure 29: Calibrations menu—Data collect(diagnostic only)

Calibrations menu—Current Loop Calibration

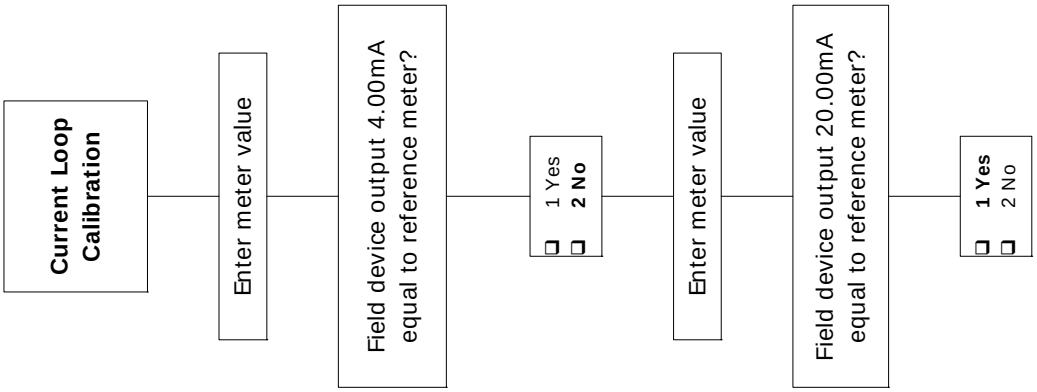

Figure 30: Calibrations menu—Current Loop Calibration

Calibrations menu—Linearizer

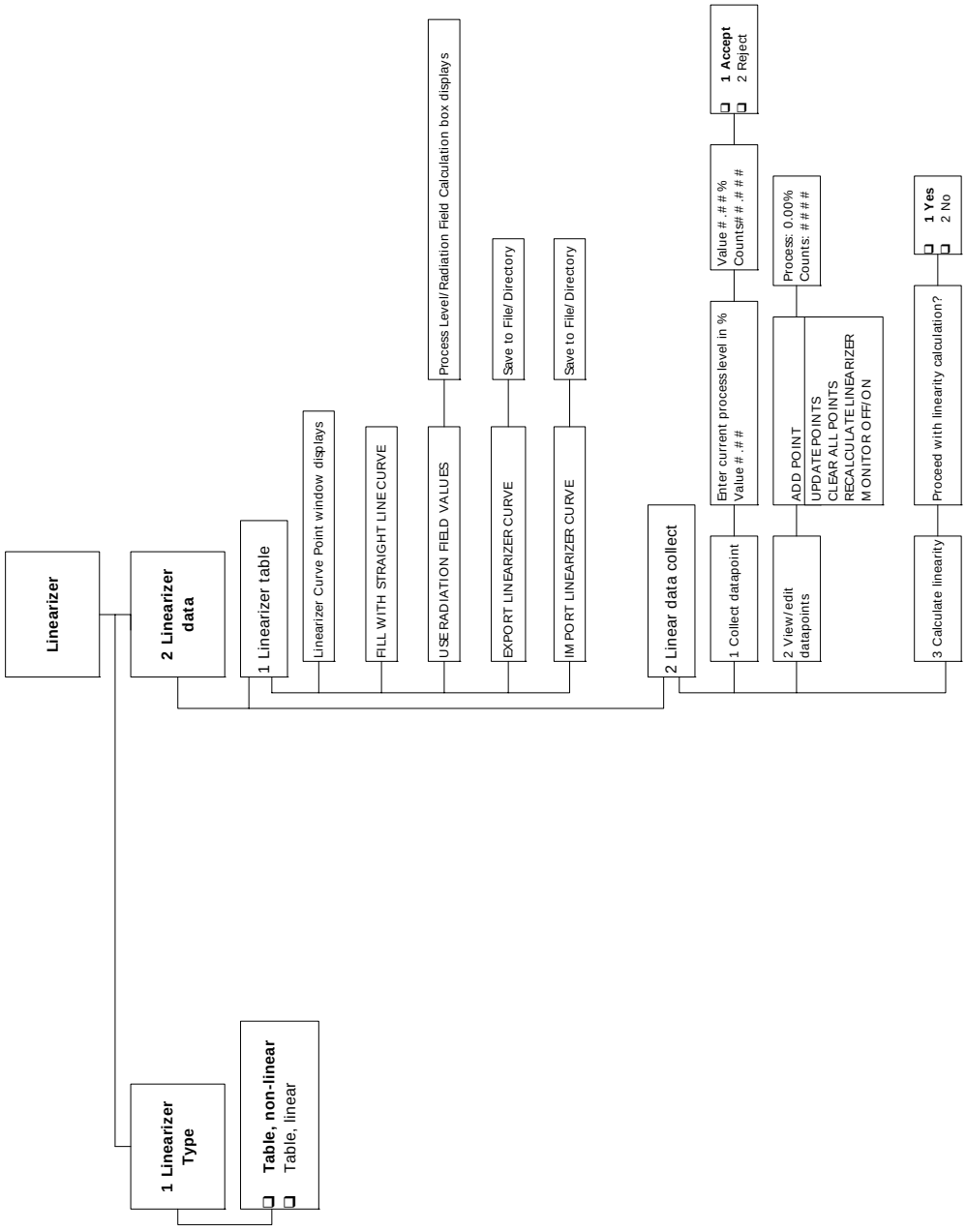

Figure 31: Calibrations menu—Linearizer

Gauge menu

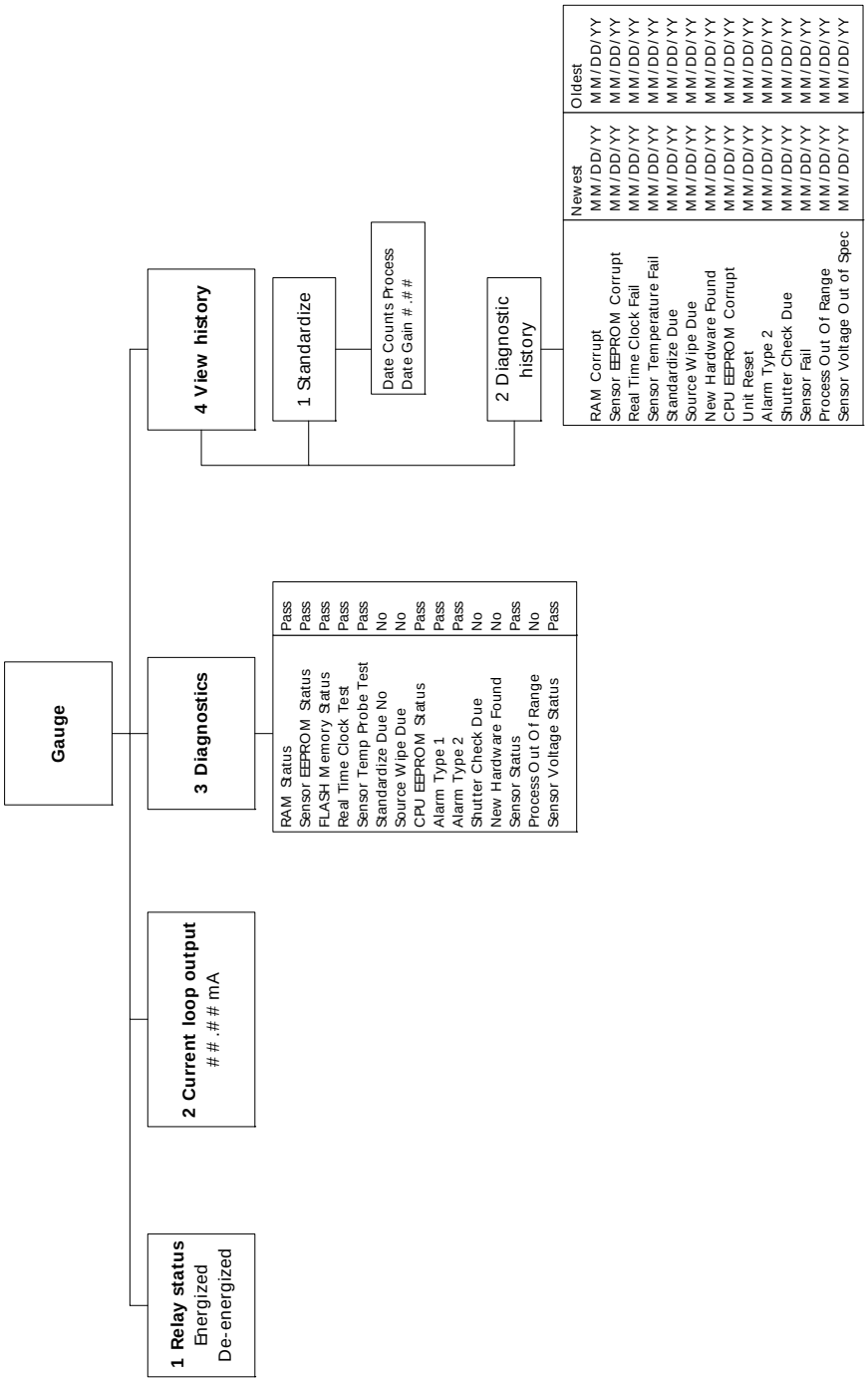

Figure 32: Gauge menu

Advanced Functions menu

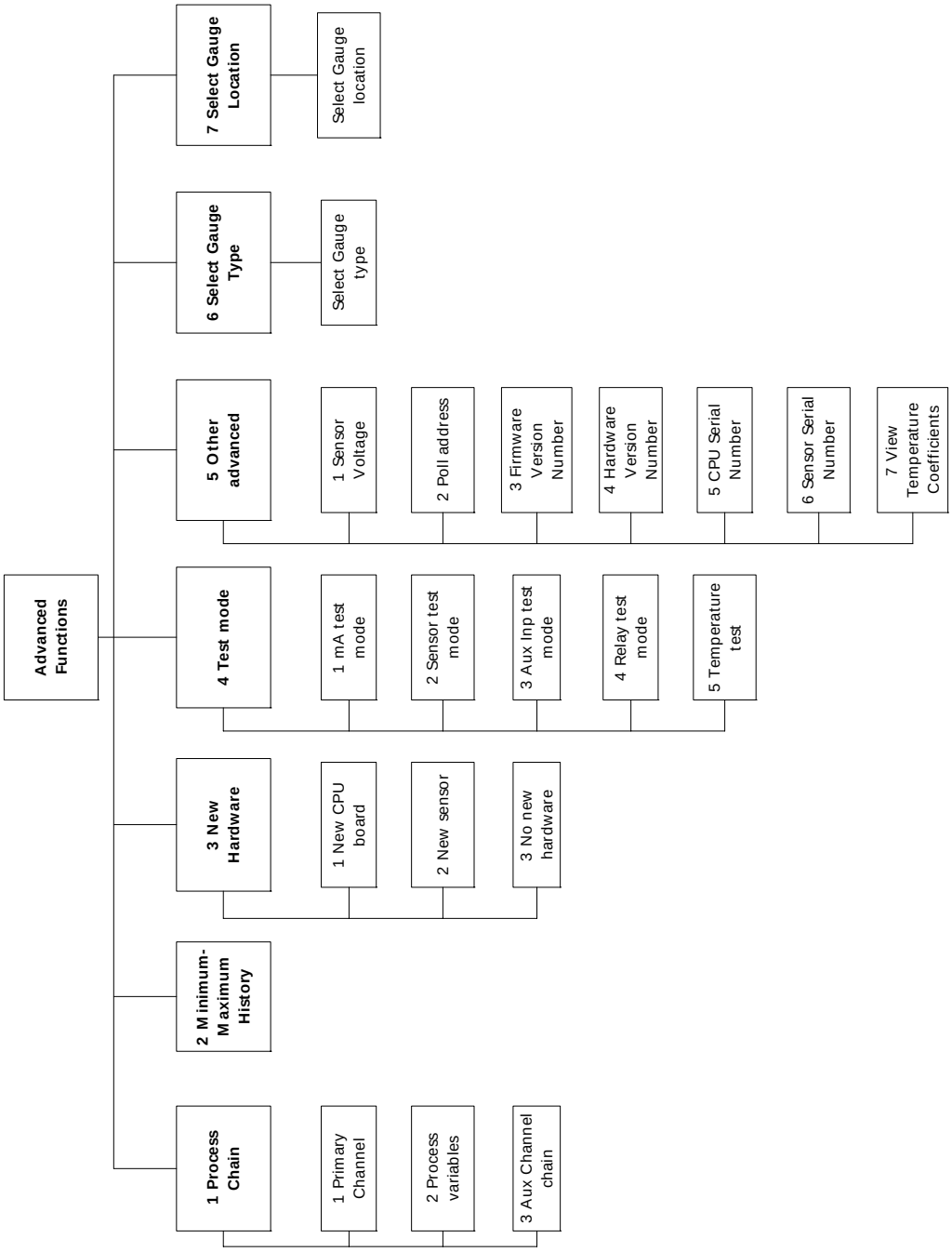

Figure 33: Advanced Functions menu

Advanced functions menu—Process Chain

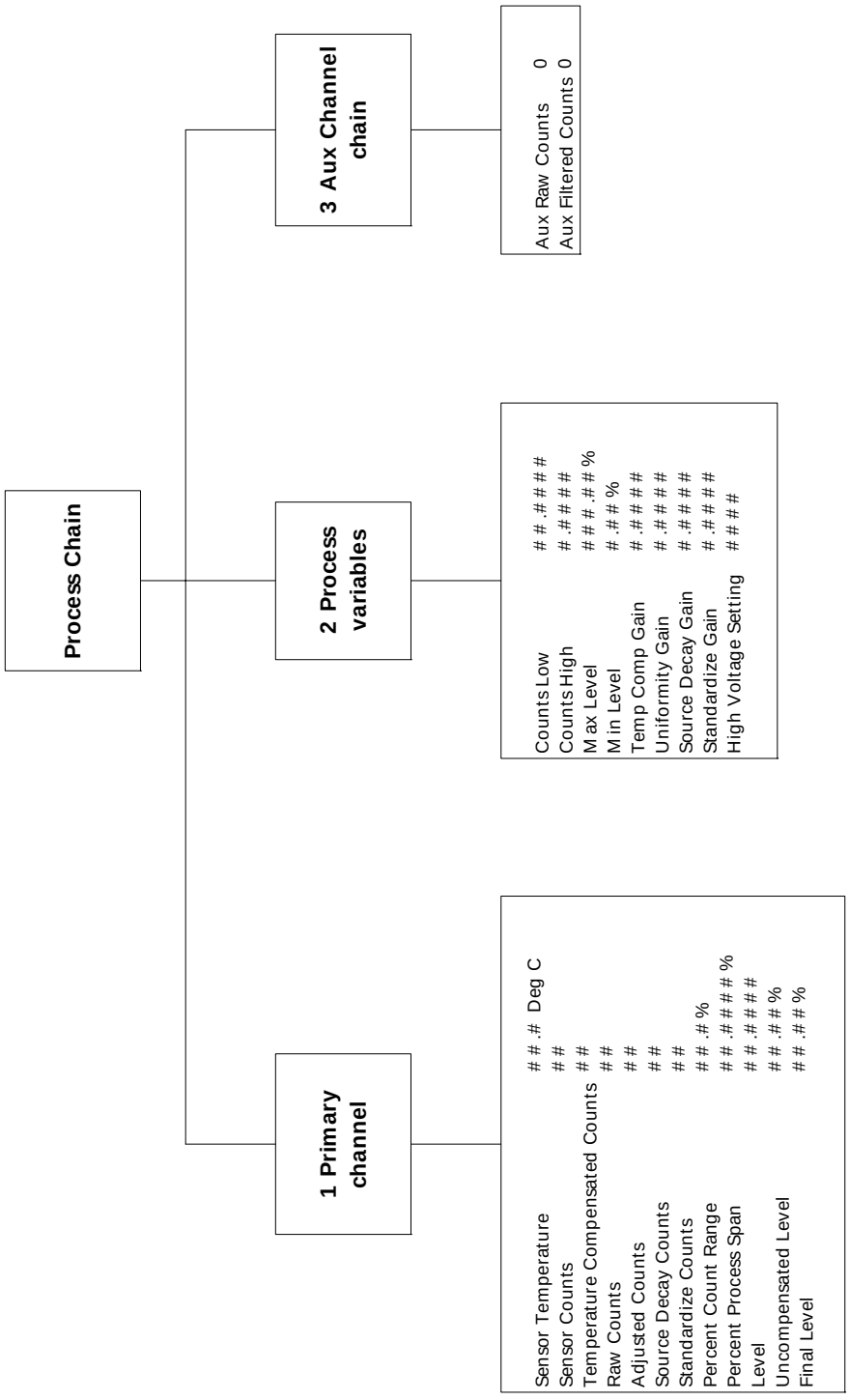

Figure 34: Advanced Functions menu—Process Chain

Advanced Functions menu—Minimum-Maximum History

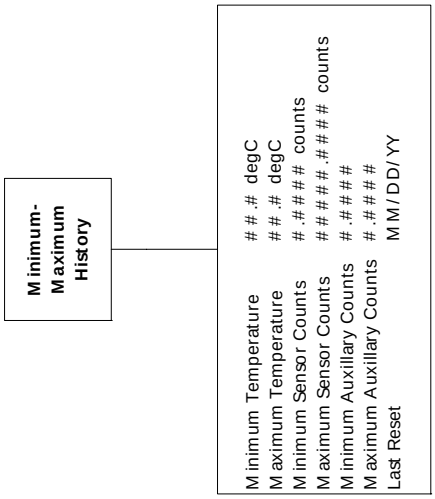

Figure 35: Advanced Functions menu—Minimum-Maximum History

Advanced Functions menu—New Hardware

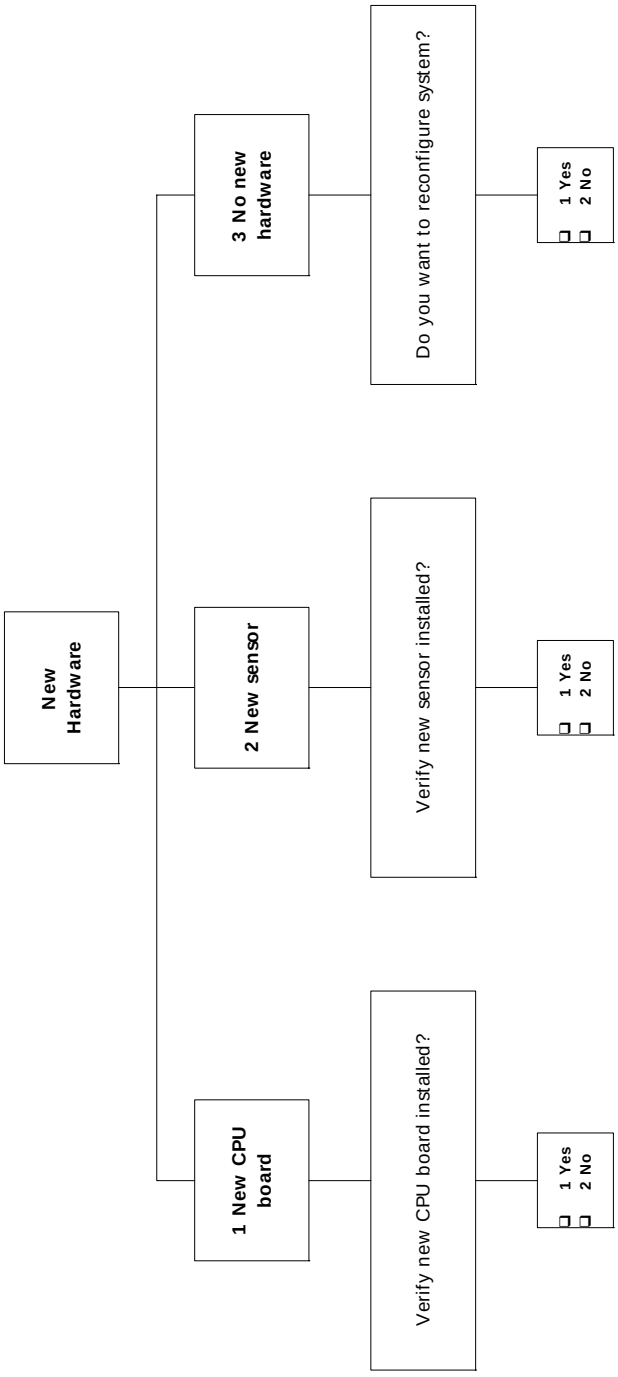

Figure 36:Advanced Functions menu—New Hardware

Advanced Functions menu—Test mode

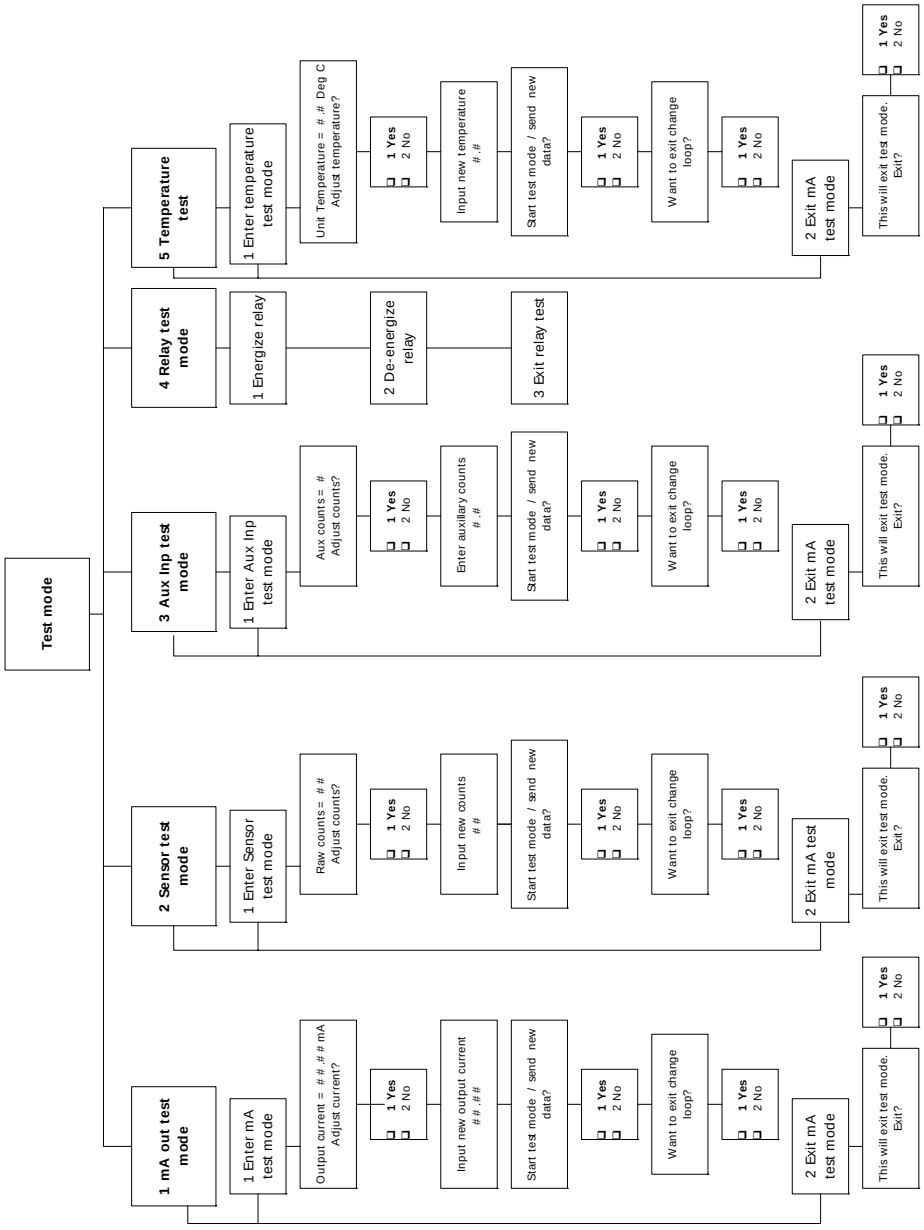
Test mode
1 mA out test mode
1 Enter mA test mode
Output current = # # .# # mA Adjust current?
1 Yes 2 No
Input new output current # # .# #
Start test mode / send new data?
1 Yes 2 No
Want to exit change loop?
1 Yes 2 No
2 Exit mA test mode
This will exit test mode. Exit?
1 Yes 2 No
2 Sensor test mode
1 Enter Sensor test mode
Raw counts = # # Adjust counts?
1 Yes 2 No
Input new counts # #
Start test mode / send new data?
1 Yes 2 No
Want to exit change loop?
1 Yes 2 No
2 Exit mA test mode
This will exit test mode. Exit?
1 Yes 2 No
3 Aux Inp test mode
1 Enter Aux Inp test mode
Aux counts = # Adjust counts?
1 Yes 2 No
Enter auxillary counts # .#
Start test mode / send new data?
1 Yes 2 No
Want to exit change loop?
1 Yes 2 No
2 Exit mA test mode
This will exit test mode. Exit?
1 Yes 2 No
4 Relay test mode
1 Energize relay
2 De-energize relay
3 Exit relay test
5 Temperature test
1 Enter temperature test mode
Unit Temperature = # .# Deg C Adjust temperature?
1 Yes 2 No
Input new temperature # .#
Start test mode / send new data?
1 Yes 2 No
Want to exit change loop?
1 Yes 2 No
2 Exit mA test mode
This will exit test mode. Exit?
1 Yes 2 No

Figure 37:Advanced Functions menu—Test mode

Advanced Functions menu—Other advanced

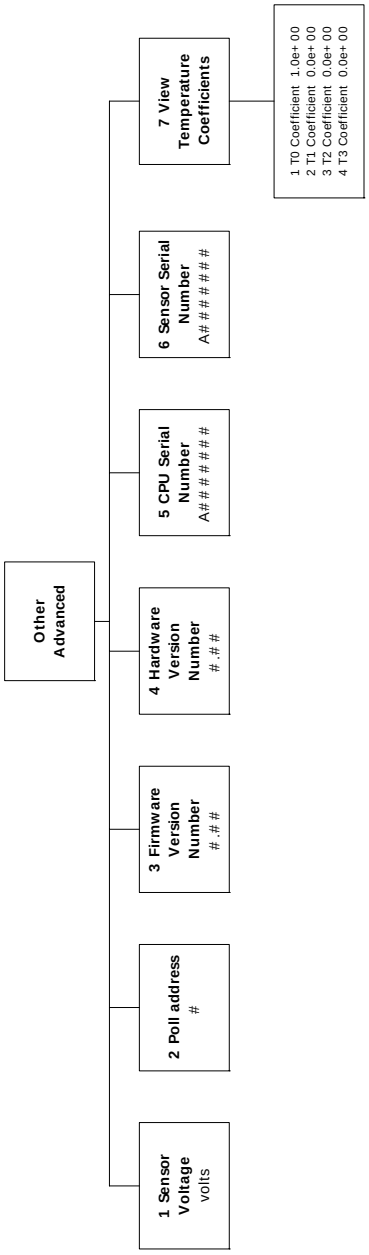
Other Advanced
1 Sensor Voltage volts
2 Poll address #
3 Firmware Version Number #.##
4 Hardware Version Number #.##
5 CPU Serial Number A######
6 Sensor Serial Number A######
7 View Temperature Coefficients
1 T0 Coefficient 1.0e+ 00
2 T1 Coefficient 0.0e+ 00
3 T2 Coefficient 0.0e+ 00
4 T3 Coefficient 0.0e+ 00

Figure 38: Advanced Functions menu—Other advanced

Advanced Functions menu—Select Gauge Type

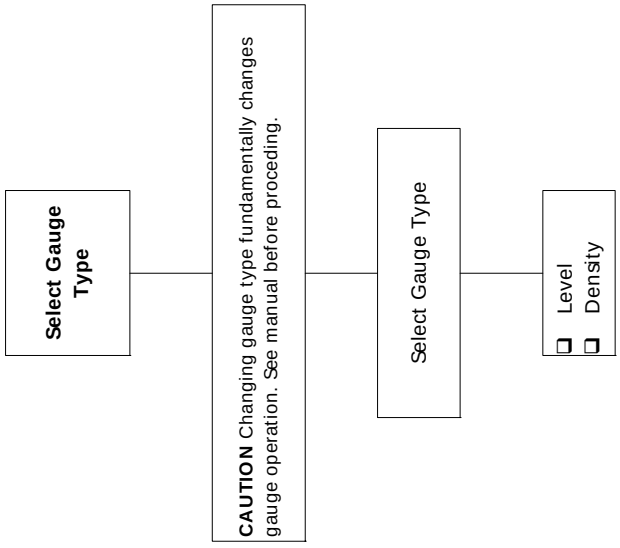
Select Gauge Type
CAUTION Changing gauge type fundamentally changes gauge operation. See manual before proceding.
Select Gauge Type
Level
Density

Figure 39: Advanced Functions menu—Select Gauge Type

Advanced Functions menu—Select Gauge Location

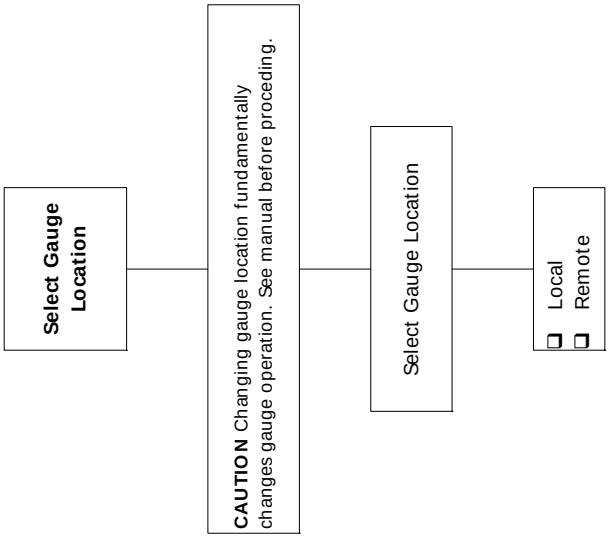
Select Gauge Location
CAUTION Changing gauge location fundamentally changes gauge operation. See manual before proceeding.
Select Gauge Location
Local
Remote

Figure 40: Advanced Functions menu—Select Gauge Location

Appendix II: Default configuration file

Configuration files (*.cfg) are ASCII files that store all the configuration data in a transmitter. Each transmitter has a unique set of configuration data, which can be downloaded with Ohmart View™ and saved with a *.cfg file name. Default configuration files for both density and level applications are included on the Ohmart View™ diskette and are copied into the **OHMVIEW** directory during the software installation.

```
Ohmart View Configuration File ver 1.3;
1.3;
;
;// DD Specific Info
5;        Number of Preambles           * READ ONLY *
5;        Universal Revision            * READ ONLY *
1;        Field Device Revision                 * READ ONLY *
1;        Software Revision             * READ ONLY *
1;        Hardware Revision             * READ ONLY *
1;        Unit Type
Ohmart;   Distributor                   * READ ONLY *
Ohmart;   Manufacturer                  * READ ONLY *
OHMART;   Model              * READ ONLY *
102384;   Device ID          * READ ONLY *
BELL 202 current;   Physical Signal Core                    * READ ONLY *
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@;       Message
 DEFAULT; Tag
@@@@@@@@@@@@@@@@@;   Descriptor
0;        Final Assembly Number
0;        Write Protect                 * READ ONLY *
0;        Poll Address
;
;// Span and output info
0.0;      Low Process Span
100.0;    High Process Span
0.0;      4mA Span
100.0;    20mA Span
9; UNITS>%<         Process Units Code
;
;// Source Info
0;        Source Type
8771.0;   Next Wipe Due                 * READ ONLY *
1095.0;   Wipe Interval
7859.0;   Next Shutter Check Due                * READ ONLY *
183.0;    Shutter Check Interval
;
;// Filter Info
0;        Filter Type
0.0;      Fast Cutoff
30.0;     Damping
;
;// Density Guage Info
1.0;      Carrier Density
4.0;      Solids Density
0;        Density Type
47;       Linear Units
0.0;      Vessel Inner Diameter
;
;// Custom Units Text & Conversion Factor
@@@@@@@@@@@@@@@@@;   Custom Units Text
1.0;      Conversion Factor
;
;// Cal Parameters
60.0;     Data Collect Interval
25.0;     Warn Percent Cal Span
0;        Stdz Type
0.0;      Default Stdz
183.0;    Stdz Interval
;
;// Time & Date
12/09/99; Unit Date
10:25:59; Unit Time
;
;// Aux Input Info
0.0;      Aux Filter
;
;// Relay Info
0;        Relay Function
```

```
0;        Relay Action
1;        Relay Status                  * READ ONLY *
0.0;      Relay Setpoint
0;        Analog Alarm Output
;
;// X-Ray Info
0.0;       Threshold
1.0;       Dither Level
30.0;      Cycle Period
20.0;      Dither Time
;
;// Min Max History
22.0;     Min Temp            * READ ONLY *
22.0;     Max Temp            * READ ONLY *
108.0;    Min Counts                    * READ ONLY *
145.0;    Max Counts                    * READ ONLY *
0.0;      Min Aux Counts                * READ ONLY *
0.0;      Max Aux Counts                * READ ONLY *
00/00/00; Min-Max Reset Date            * READ ONLY *
;
;// Process Float Values
132.0;    Raw Counts                    * READ ONLY *
0.0;      Aux Raw Counts                * READ ONLY *
40800.0;  Counts Low
100.0;    Counts High
40700.0;  Counts Range                  * READ ONLY *
1.0;      Process Low
1.0;      Process High
1.0;      Process Span                  * READ ONLY *
1.0;      Source Decay                  * READ ONLY *
137.0;    Std Counts                    * READ ONLY *
99.909088;          Percent Count Range           * READ ONLY *
1.0;      Stdz Gain           * READ ONLY *
1.0;      Buildup Factor                * READ ONLY *
39.976414;          Lin Table Point               * READ ONLY *
4095.0;   Sensor Voltage                * READ ONLY *
21.272636;          Percent Range                 * READ ONLY *
1.0;      Measurement Gain
0.0;      ohmLimitSpan                  * READ ONLY *
0.0;      ohmBaseValue                  * READ ONLY *
;
;// Calibration Values
0.0;      Cal Low Counts
0.0;      Cal Low Process
00/00/00; Cal Low Date
0.0;      Cal High Counts
0.0;      Cal High Process
00/00/00; Cal High Date
0.0;      Cal Stdz Counts
0.0;      Cal Stdz Process
00/00/00; Cal Stdz Date
;
;// Linearizer Data Points and Curve
0;        Number Of Linearizer Data Points
1;        Linearizer Type
;
;// Linearizer Table Values
0.0;      Linearizer Point #1
2.5;      Linearizer Point #2
5.0;      Linearizer Point #3
7.5;      Linearizer Point #4
10.0;     Linearizer Point #5
12.5;     Linearizer Point #6
15.0;     Linearizer Point #7
17.5;     Linearizer Point #8
20.0;     Linearizer Point #9
22.5;     Linearizer Point #10
25.0;     Linearizer Point #11
27.5;     Linearizer Point #12
30.0;     Linearizer Point #13
32.5;     Linearizer Point #14
35.0;     Linearizer Point #15
37.5;     Linearizer Point #16
40.0;     Linearizer Point #17
42.5;     Linearizer Point #18
45.0;     Linearizer Point #19
47.5;     Linearizer Point #20
50.0;     Linearizer Point #21
52.5;     Linearizer Point #22
55.0;     Linearizer Point #23
57.5;     Linearizer Point #24
60.0;     Linearizer Point #25
62.5;     Linearizer Point #26
65.0;     Linearizer Point #27
67.5;     Linearizer Point #28
70.0;     Linearizer Point #29
72.5;     Linearizer Point #30
75.0;     Linearizer Point #31
77.5;     Linearizer Point #32
80.0;     Linearizer Point #33
82.5;     Linearizer Point #34
85.0;     Linearizer Point #35
87.5;     Linearizer Point #36
90.0;     Linearizer Point #37
92.5;     Linearizer Point #38
95.0;     Linearizer Point #39
97.5;     Linearizer Point #40
100.0;    Linearizer Point #41
;
;// Standardize and Standardize Gain Histories             * READ ONLY *
00/00/00; Stdz History Date #1
0.0;      Stdz History Counts #1
0.0;      Stdz History Process #1
;
00/00/00; Stdz History Date #2
0.0;      Stdz History Counts #2
```

```
0.0;      Stdz History Process #2
;
00/00/00; Stdz History Date #3
0.0;      Stdz History Counts #3
0.0;      Stdz History Process #3
;
00/00/00; Stdz History Date #4
0.0;      Stdz History Counts #4
0.0;      Stdz History Process #4
;
00/00/00; Stdz History Date #5
0.0;      Stdz History Counts #5
0.0;      Stdz History Process #5
;
00/00/00; Stdz History Date #6
0.0;      Stdz History Counts #6
0.0;      Stdz History Process #6
;
00/00/00; Stdz History Date #7
0.0;      Stdz History Counts #7
0.0;      Stdz History Process #7
;
00/00/00; Stdz History Date #8
0.0;      Stdz History Counts #8
0.0;      Stdz History Process #8
;
00/00/00; Stdz History Date #9
0.0;      Stdz History Counts #9
0.0;      Stdz History Process #9
;
00/00/00; Stdz History Date #10
0.0;      Stdz History Counts #10
0.0;      Stdz History Process #10
;
00/00/00; Stdz History Date #11
0.0;      Stdz History Counts #11
0.0;      Stdz History Process #11
;
00/00/00; Stdz History Date #12
0.0;      Stdz History Counts #12
0.0;      Stdz History Process #12
;
00/00/00; Stdz History Date #13
0.0;      Stdz History Counts #13
0.0;      Stdz History Process #13
;
00/00/00; Stdz History Date #14
0.0;      Stdz History Counts #14
0.0;      Stdz History Process #14
;
00/00/00; Stdz History Date #15
0.0;      Stdz History Counts #15
0.0;      Stdz History Process #15
;
00/00/00; Stdz History Date #16
0.0;      Stdz History Counts #16
0.0;      Stdz History Process #16
;
00/00/00; Stdz History Date #17
0.0;      Stdz History Counts #17
0.0;      Stdz History Process #17
;
00/00/00; Stdz History Date #18
0.0;      Stdz History Counts #18
0.0;      Stdz History Process #18
;
00/00/00; Stdz History Date #19
0.0;      Stdz History Counts #19
0.0;      Stdz History Process #19
;
00/00/00; Stdz History Date #20
0.0;      Stdz History Counts #20
0.0;      Stdz History Process #20
;
00/00/00; Stdz Gain History Date #1
0.0;      Stdz Gain History Gain #1
;
00/00/00; Stdz Gain History Date #2
0.0;      Stdz Gain History Gain #2
;
00/00/00; Stdz Gain History Date #3
0.0;      Stdz Gain History Gain #3
;
00/00/00; Stdz Gain History Date #4
0.0;      Stdz Gain History Gain #4
;
00/00/00; Stdz Gain History Date #5
0.0;      Stdz Gain History Gain #5
;
00/00/00; Stdz Gain History Date #6
0.0;      Stdz Gain History Gain #6
;
00/00/00; Stdz Gain History Date #7
0.0;      Stdz Gain History Gain #7
;
00/00/00; Stdz Gain History Date #8
0.0;      Stdz Gain History Gain #8
;
00/00/00; Stdz Gain History Date #9
0.0;      Stdz Gain History Gain #9
;
00/00/00; Stdz Gain History Date #10
0.0;      Stdz Gain History Gain #10
;
;
;// Diagnostic Alarm Status
```

```
0; Diagnostic Alarm Status Block 0               * READ ONLY *
0; Diagnostic Alarm Status Block 1               * READ ONLY *
0; Diagnostic Alarm Status Block 2               * READ ONLY *
;
;// Diagnostic Group Settings
0; Diagnostic Group Setting 1
0; Diagnostic Group Setting 2
;
;// Diagnostic Histories               * READ ONLY *
;Diag history:RAM corrupt
00/00/00;  Newest
00/00/00;  Oldest
;
;Diag history:Sensor EEPROM corrupt
00/00/00;  Newest
00/00/00;  Oldest
;
;Diag history:FLASH EPROM Memory corrupt
00/00/00;  Newest
00/00/00;  Oldest
;
;Diag history:Real Time Clock Test fail
00/00/00;  Newest
00/00/00;  Oldest
;
;Diag history:Sensor Temperature fail
00/00/00;  Newest
00/00/00;  Oldest
;
;Diag history:Standardize Due
00/00/00;  Newest
00/00/00;  Oldest
;
;Diag history:Source Wipe Due
00/00/00;  Newest
00/00/00;  Oldest
;
;Diag history:New Hardware Found
00/00/00;  Newest
00/00/00;  Oldest
;
;Diag history:CPU EEPROM fail
00/00/00;  Newest
00/00/00;  Oldest
;
;Diag history:Unit Reset
00/00/00;  Newest
00/00/00;  Oldest
;
;Diag history:Alarm Type 2
00/00/00;  Newest
00/00/00;  Oldest
;
;Diag history:Shutter Check Due
00/00/00;  Newest
00/00/00;  Oldest
;
;Diag history:Sensor fail
00/00/00;  Newest
00/00/00;  Oldest
;
;Diag history:Process Out Of Range
00/00/00;  Newest
00/00/00;  Oldest
;
;Diag history:Sensor Voltage Out Of Spec
00/00/00;  Newest
00/00/00;  Oldest
;
;
;// Unit Specific Info                 * READ ONLY *
1.0; Temp Comp Coeff 0
0.0; Temp Comp Coeff 1
0.0; Temp Comp Coeff 2
0.0; Temp Comp Coeff 3
2.00; Firware Version
1.00; Hardware Version
PDEBP4QE; CPU Serial Number
PDEBP4QE; Sensor Serial Number
; One Point Cal Reference
-5.0e-01; one point cal coeff
;  ----XTRA VARIABLES----
01; Address=63A8 Data=BYTE
00; Address=60CE Data=BYTE
1.0e+00; Address=62F6 Data=FLOAT
0640; Address=638A Data=WORD
;
; Process Chain Snapshot
22.0 Deg C; Sensor Temperature
133; Sensor Counts
133; Temperature Compensation Counts
132; Raw Counts
110; Sum Counts
110; Source Decay Counts
134; Standardize Counts
99.9%; Percent Count Range
3.6648 %; Percent Proces Span
2.8981; Process
3.6124 %; Final Process
1.0000; Temperature Compensation Gain Term
0.0000 Deg C; Process Temperature
0; Compensation Type
0; Comp Units
0.0; Temp Comp Reference Temperature
0.0e+00; Process Temp Comp Coeff 0
0.0e+00; Process Temp Comp Coeff 1
```

```
0.0e+00; Process Temp Comp Coeff 2
0.0e+00; Process Temp Comp Coeff 3
0.0e+00; Comp Coeff A
0.0e+00; Comp Coeff B
0.0e+00; Comp Coeff C
4.0e-03; Comp Coeff D
0.0e+00; Comp Coeff E
;
0; Sensor Location
;
6000.0; Analog Input Cal Low Counts
30250.0; Analog Input Cal High Counts
;
0001; Days unit has been powered on
;
; Ohmart View version 2.00.0
```

Figure 41: Example of default configuration file

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Notes

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All statements concerning scope of delivery, application, practical use, and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.

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